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COURSE OF LECTURES
ON THE
PHYSIOLOGY AND PATHOLOGY OF THE BLOOD,
AND
THE OTHER ANIMAL FLUIDS,

DELIVERED IN THE SESSION OF 1839-40,
AT THE
School of Anatomy adjoining St. George's Hospital.

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LECTURE XIV.

Secretions, continued. Perspiration: its composition and qualities; circumstances by which it is influenced; its effects on the quantity, quality, and distribution of the blood. Mucous Secretions: differential characters of mucus and pus globules described by Mr. Lane; Raspail's and Henle's views. Serous Exhalations. Saliva. Gastric Juice. Pancreatic and Intestinal Fluids. Secretion of the testes, vasa deferentia, and vesiculæ seminales; Dr. Davy's investigations. Tears. Cerumen. Prostatic secretion. Fluid of the thyroid gland.

GENTLEMEN:—It was shown in the last lecture, that the blood parts with water many animalised principles, salts, and innumerable foreign materials, during its passage through the kidneys, and that any failure of those organs to perform their function is attended, through the vital fluid, with the most disastrous consequences to the animal economy. I have now to call your attention to the modifications which take place in the blood as it passes through the immense capillary net-work which constitutes so great a portion of the skin, where it is again brought into relation with the circumambient air. The merit of the earliest serious investigations on this subject is due to Sanctorius, but they have been followed out since his time by numerous physiologists, and we are indebted of late to Dr. W. F. Edwards for some very important experiments. I shall endeavour to place the results before you in the simplest and most practical point of view.

Sweat.—I am constrained to use this word, in consequence of great confusion of terms as employed by different authors. The sweat is an acid fluid, secreted from the blood in the glandular apparatus with which the skin is so abundantly studded. It comprises the sebaceous matter from those glands which open, for the most part, into the follicles of the hairs; the fluid from the sudoriferous organs discovered by Purkinje and Breschet; and the solid matter, in the form of furfuraceous scales, which is detached from the skin, and results from its disorganisation. 1000 parts of this complicated fluid have been found to contain from 5 to 12½ of solid residue, in which a considerable quantity of fatty matters, and the animal principles, osmazome, salivary matter, lactic or acetic acid, carbonates of soda and of lime, chloride of sodium, sulphate of soda, phosphates of soda and lime, some potassa, traces of oxide of lime, and lactates or acetates, have been detected; most of which substances have been found in the urine, but in much greater quantity. The sweat has peculiar properties in different parts of the body, most likely due to the sebaceous glands; it is ammoniacal in the axillæ, and that of the genital organs contains butyric acid. The average quantity secreted by an adult daily has been computed at five ounces. It is secreted by vital processes, independently of external agencies, and the skin may be likened to the kidneys, as an organ which serves to excrete materials from the blood. There are great constitutional differences with respect to its habitual quantity, and this may be influenced by a great many causes. It is diminished, for instance, by cold, and augmented by heat. It may occur in quantities so small, and be evaporated so rapidly, as to be imperceptible, and it is frequently so abundant as to bathe the surface with fluid; but it has been affirmed that there are persons who never sweat. Every cause which checks the sweat must influence the quantity and the qualities of the blood, and may thereby become a cause of local or general disease.

It is arrested or becomes profuse in various diseases, and in particular stages of disease, or its quality may be changed. It has been observed to have a yellow, blue, green, black, or ruby colour, and since all these colours occur when blood is extravasated under the cuticle, according to the particular constituents of the latter fluid which are effused, or have been absorbed, there is no doubt that these colours are derived from the blood. The sweat may have the appearance of red blood, and blood itself has been said to transude from the skin, although it is reasonable to suppose that it is hematosine dissolved in the liquor sanguinis. Free uric acid, in the form of red sand, lactate of soda, muriate of soda in extraordinary quantities, are occasionally separated from the blood by this emunctory. Anselmino found an excess of ammonia and of its salts in the sweat during a paroxysm of gout, and a critical sweat during the progress of a rheumatic fever was loaded with albumen.

Cutaneous Transpiration.—This consists in the evaporation of a portion of water from the body, and it takes place from the dead as well as the living subject, whereas the secretion of sweat occurs only during life. It does not contain the solid matters of the sweat, but, according to Anselmino, is water mixed with carbonic acid, and is in every respect analogous to the pulmonary transpiration before described. Both contain a minute quantity of animal matter, and, perhaps, of salts; both proceed directly from the fluids of which the tissues are composed, but mainly from the blood; and both are liable to carry with them many volatile and odorous principles contained in the halitus of the blood. By this process the caloric of the blood is rendered latent, hence it is the great cooling function; it also *dries* the tissues, whereas the former process *moistens* them. The quantity of water transpired by the skin has been estimated at twenty-eight ounces, or about six times that by sweat; but here, again, the most extensive range of variation must be admitted. It has been found experimentally, that, under similar circumstances, the transpiration is more copious during the early than during the latter part of the day, and, supposing we abstain from food, sleep, and all disturbing causes, it undergoes a uniform, successive diminution; hence it is influenced by the quantity of fluid in the vessels. During six hours after a meal, it is from one to two-thirds more than on an empty stomach, and sleep has an habitual tendency to increase it. Fluids taken into the blood in excess, particularly if warm, are very rapidly separated again, as the vital fluid circulates over the surface—pulmonary and cutaneous; the quality of the blood, but more especially its quantity and temperature, are thus duly maintained by the skin, but at the same time rendered subject to extensive changes, corresponding with the state of the transpiration; and the external agencies which influence the latter, by their effects on the blood, constitute a series of causes the most prolific of diseases in all climates.

The transpiration is influenced directly by the state of *moisture* and *motion*, and the *pressure* and *temperature*, of the atmosphere. Within a certain range of temperature, extreme dryness, compared with extreme humidity, considerably increases it; in even moderate degrees of dryness the loss by this emunctory may be six or seven times greater than in extreme humidity, and although transpiration tends to lower the temperature of the body and to diminish sweat, still the loss of fluid from the blood is greatly increased by the dryness of the air, and equally diminished by its humidity. Currents replace the warm humid air with which the human body, at a temperature of 98°, is immediately surrounded, with that which is colder and drier; accordingly currents of air increase cutaneous transpiration: "this cause is so powerful, that even imperceptible differences in the motion of the air occasion very great effects; but the motion of the air is applicable in this way only when there is not a great tendency to sweat." With respect to pressure, a rarefied atmosphere increases, and one which is dense diminishes transpiration. The heat of the air being increased of course tends to increase the loss of fluid by this process, but at the same time it sets a limit to it by exciting the secretion of sweat, by which the body may be coated with fluid so as to prevent further loss by transpiration. Considering these circumstances, we understand how it happens that in a cold state of the air, which diminishes sweat, the fluids of the body may still be carried off in great quantity by transpiration; and that the state of moisture or dryness, agitation or rest, and the pressure and temperature of the atmosphere, by interfering with the process of transpiration, do alter the quantity, the quality, and the distribution of the blood, and thereby become the causes of diseases, both sporadic and endemic.

Perspiration.—I am further constrained to employ this term, as comprising both the processes above described—the sense in which it is most frequently used by practical writers. In this sense, then, it appears that perspiration cannot be *suppressed* in warm-blooded animals. Suppose the atmosphere so intensely cold as to stop the sweating process, and saturated with moisture—conditions, as you would imagine, favourable to a suppression of perspiration in any form; the warmth of the body now raises the temperature, and alters the hygrometric state of the air which surrounds it, thus giving room, as it were, for increased transpiration. Suppose the atmosphere so hot as to equal in

temperature the human body, and at the same time saturated with moisture; sweat is then excited to such an extent as to bathe the whole surface, although the transpiration is suppressed. Sudden and extreme changes in the state of the perspiration are constantly occurring, so as to influence the blood in the vessels, although it is fortunately provided that there is no such thing as a total suppression of perspiration. The temperature of the air has a most powerful influence. Edwards estimates, that at 68° it is twice as much, and at 104° seven times as much, as at 32°. Of all animals, in man the cutaneous transpiration is most liable to be affected by external agents. In an atmosphere at 68°, in health and at rest, man rarely sweats. This function augments in higher temperatures, and it sets bounds, as we have seen, to excessive transpiration, by covering the body with moisture, unless, indeed, the air be very dry, very warm, and very much agitated, when the two processes, as in lower temperatures, may take place at the same time. On high mountains the air is rarefied and dry, and, although cold, transpiration, both pulmonary and cutaneous, is greatly increased; hence intense thirst, and a feeling of distress in the chest. When the air becomes loaded with moisture, the transpiration diminishes, and the general distress and thirst subside.

Diminished perspiration has ever been considered, with great truth, as a cause of diseases, and, unquestionably, it would prove so much more frequently than it does, if it were not for the alternate action, or "antagonism," as it has been called, of the secretions. It would be easy to demonstrate mathematically that a pebble cannot be dropped into the Indian Ocean without affecting the waves of the Atlantic; so, also, in the human body, "no one secretion can be altered in quantity or quality without disturbing the balance which exists between all, in their action upon the blood." Increased perspiration produces diminished urinary secretion, and the contrary; but with respect to the functions of the skin and kidneys, it appears to me that, to a certain extent, they coincide with each other; but there is this difference—the proper office of the kidneys is to separate animal and saline matters from the blood, water being their vehicle, and the excretion of the latter, as regards the kidneys, is a secondary object. The proper office of the skin, on the contrary, is the secretion of watery particles, the salts being of secondary import. Hence, when a quantity of water has been received rapidly by the blood, the perspiration is as rapidly increased, the urinary secretion is not augmented until digestion is considerably advanced. Yet diminished perspiration is frequently made up for by increased secretion by the kidneys. The skin, again, is analagous to the lungs in its function of transpiration, and the one is frequently vicarious of the other in relieving the blood of superfluous watery particles. In diabetes, even when phthisis supervenes, the perspiration is diminished, if not superseded. Andral quotes a case of ichthyosis, from Alibert, wherein the cutaneous transpiration being suppressed, the pulmonary vapour was seen issuing in clouds from the thorax, and rising to the roof of the bedstead, whence it descended in the form of an abundant dew. The same pathologist puts the question, Does the profuse sweat in phthisis serve as a substitute for the pulmonary transpiration? Without stopping to discuss these much-neglected topics, we may infer, without a chance of error, the extensive provision which has been made in the animal economy to preserve the blood in a state of purity, and to maintain it in due quantity, and thereby to avert disease. Failing the salutary effect of this alternate action of the secretions, or, rather, the excretions, diminished perspiration becomes a cause of disease. During the period of desquamation of the cuticle after scarlatina, it is the most probable cause of the frequency of dropsy; and, in a more general way, catarrhs, rheumatisms, inflammations, fevers, and effusions into the cellular membrane and serous cavities, are its frequent consequences.

Estimating the ingesta of a hearty man at 96 ounces daily, the quantity of the secretions, and the manner in which it is disposed of, may be roughly calculated as follows:—

Urine	48 ozs.
Alvine dejections	6 „
Various excretions	3 „
Pulmonary transpiration	6 „
Cutaneous transpiration	28 „
Sweat	5 „

But when I remind you that Dr. Heberden records the case of a man who had an alvine evacuation but once a month, and another who had twelve every day for thirty years, and afterwards seven in a day for seven years, and yet grew fat; that some persons rarely sweat, and others sweat profusely from the slightest cause; that the pulmonary transpiration has been sometimes found to be twenty, and at others five ounces; and that the products of digestion in the alimentary canal are not the only new materials received into the blood, but both lungs and skin absorb; you will form some estimate of the rudeness of this calculation. With respect to perspiration, the earlier experimenters included under this term the loss of weight which the body sustains by sweat, and both pulmonary and cutaneous transpiration: thus Lining estimates that the summer perspiration is to the winter as 2.06 to 1., and he found the greatest summer urine to the greatest winter as 1. to 2.03. The quantity of fluid which traverses the blood-vessels from the blood in each of these different ways is vari-

able, according to an infinity of circumstances—as diet, regimen, state of repletion or emptiness of the blood-vessels, season, climate, epidemic constitution of the atmosphere, and individual constitution or idiosyncracy of the subject.

The skin does not only resemble the lungs by allowing of the transpiration of a watery vapour from the blood, but the two organs are otherwise analogous in function. Millet, Lavoisier, and Abernethy, ascertained that oxygen gas is absorbed, and carbonic acid given off by it; the difference between the relative situation of the air and blood in the skin and lungs being a difference in the thickness of the membrane by which they are separated. Spallanzani was perfectly confident that air in contact with the skin is changed in the same manner as in the lungs. When atmospheric air was used oxygen gas disappeared and carbonic acid presented itself; and in Abernethy's experiments carbonic acid was given off by the hand, whatever the gas might be with which it was surrounded. These experiments of Spallanzani and Abernethy are confirmed by the more recent ones of Edwards; and there can be no doubt that the blood is acted on by the air, in its passage through the skin, precisely in the same manner, although in a much smaller degree, as in the lungs; hence in part the florid redness of exposed surfaces. Azote is also frequently thrown off by the skin. Again, when the body is immersed in a warm bath, the transpiration is suppressed, but not the secretion of sweat, and the skin, moreover, absorbs water to a great extent. According to the predominance of absorption or excretion, the quantity of fluid in the vessels, and the weight of the body, are increased or diminished. In Berthold's experiments three drachms were gained in the first quarter of an hour, and above an ounce in an hour, over and above what was lost by the lungs in the same time. When the vessels are full, absorption is less; when the temperature is less, secretion of sweat is diminished; so also there are experiments which tend to establish the fact that in a humid atmosphere water may be absorbed by the skin. The blood may also be impregnated with other substances besides water and oxygen, by cutaneous absorption. It is true that this generally takes place very slowly, but under circumstances it may be sufficient to affect the whole mass of blood in a very short time. It is always more rapid when the cutis is denuded of its epidermis. Mercury rubbed into the skin excites salivation, and cures syphilis; tartrate of antimony will excite vomiting, and arsenic will poison. Vegetable substances in solution are also received into the blood by the skin. Camphor applied to the skin may be detected in the vapour exhaled from the lungs; oil of turpentine by the violet smell of the urine. Cantharides will excite strangury, and oil of croton and gamboge will purge. Many of those substances which produce ulterior effects in the animal economy, as medicines or poisons, are afterwards detectable in the urine, milk, and other secretions, and also in the blood itself.

Mucous Secretions.—Following the blood through the capillary system, after the urine and perspiration the mucous and serous fluids demand our attention. The membranes which line the cavities of the body have been divided into two classes, those which form the internal tegumentary membrane and have communication with the external air, or mucous membranes, and those which line cavities and do *not* communicate externally, and are called serous. This distinction expresses a real difference both in anatomical structure and in the fluids which are elaborated from the blood in them. Animal mucus is a secretion peculiar to all the mucous surfaces, and by Raspail, Henle, and other modern physiologists, it is regarded, in a state of health, as little more than the result of their daily disorganisation. Mucus, according to Dr. Bostock, is distinguished by viscidity, or a capacity to be drawn into shreds; it is not coagulable by heat, nor capable of being gelatinised: the solution of acetate of lead, with which it forms a dense precipitate, is regarded by him as its peculiar test, and it differs from the serous secretions, presently to be described, in not being readily miscible in all proportions with water, and in having less analogy to the serum of the blood. Mucus is secreted gradually, and discharged as secreted; whereas the serous fluids, being confined in closed cavities, are reabsorbed: it is separated by a minute glandular apparatus, and is, so far, analogous to the sweat secreted by the skin, but its animal matter, instead of being oily, resembles in some respects coagulated albumen, and gives the notion of the albumen of the blood having been altered in its passage through the glands; and its salts, consisting in great part of chloride of sodium, are neutral, which again distinguishes it from the fluid of the serous membranes. Viewed under the microscope it contains globules very nearly resembling pus globules. (TABLE XXI., *fig.* 20 and 21.)

I should state that pus is a fluid which contains globules which are not easily distinguished from those of mucus. My friend Mr. Lane has obliged me with the following account of the difference between them:—"*Pus globules* are transparent and colourless; spherical, or nearly so; averaging in size 1.2000th of an inch in diameter, with considerable variation; they are spotted irregularly with numerous small circular bodies, which, from their appearance, I should call vesicles rather than granules; these little bodies are also found dispersed in the fluid in which the pus globules float. Pus glo-

bules, when allowed to dry on a piece of glass, expand, and measure considerably more in diameter than in their moist state. The *mucus globule* from a healthy membrane is also transparent and colourless; more perfectly spherical and less variable in size than the pus globule; and measures rather less in diameter, 1.2800th being the average of those now under the microscope. The mucus globule has a granular appearance, and, indeed, seems to be an aggregation of numerous small spherical granules, which are confined to the globule, and are not found in the surrounding fluid. It does not spread out much when allowed to dry on glass, and consequently measures nearly the same in its dry and moist states. If pus globules, mucus globules, and blood corpuscles, mixed together and placed between a piece of glass and talc, be viewed under the microscope, they will all be seen in rapid motion, and it will be observed, that while the latter alter their form in every conceivable way to accommodate themselves to the obstructions with which they meet, the two former distinctly maintain their spherical form." This of course does not touch the question whether there is any difference between the globules of pus and those of mucus in a state of disease.

Raspail ascertained, by the aid of the microscope, that the *epidermis* is nothing more than the external layer of the cutis, and composed of emptied and flattened cells, which fall off, as they become dried and retracted, in the form of furfuraceous scales; he considered also that every mucous membrane exfoliates in a similar manner, in organised layers. Dr. Henle has lately published a memoir on the formation of mucus and pus, in which this view is confirmed. The *epithelium*, like the epidermis, is a simple or multiplied layer of cells, which cells always contain a more or less flat, round, or oval nucleus, and this nucleus one or two small granules. Different kinds of epidermis or epithelium depend on a difference in the state of development of these cells.—1. Plaster epithelium constitutes the epidermis, and occurs in mucous membranes, close to their external apertures. In this the cells have a contour similar to the nucleus, sometimes laying close and sometimes forming a wide bladder around it. (Fig. 23.)—2. Conical or cylindrical epithelium, in which the cells have a conical figure, the apex being turned towards the mucous membrane, and the base towards its free surface. (Fig. 24.)—This lines the whole digestive canal, the ducts of most of the glands, and the virile apparatus, excepting the vesiculæ seminales, and the cells of the prostate.—3. Ciliary epithelium, distinguished from the latter by having ciliæ on the broad or free ends of the cells. (Fig. 25.) They are found in the respiratory organs, in the internal organs of generation in the female, and also in the ventricles of the brain, on the inner surface of the eyelids, and in the lachrymal sac and ducts. These cellular layers permit fluids to pass in both directions.

Mucus in its healthy state, according to Dr. Henle, is composed of epithelium and mucous juice, corresponding with the epidermis and secretion of sweat and oleaginous matter by the skin. The mucous juice is different in different parts of the mucous membranes, and the epithelium differs as above described; mucus itself varies in nature and appearance but it is essential to note that these authors regard *all* mucous secretions in their physiological state as consisting essentially of "cast-off epithelium."

According to Dr. Henle, when mucus is secreted very abundantly, or in a diseased state, it is not to be distinguished microscopically from pus; both consist of "molecular bodies, with their envelops," floating in a more or less inspissated fluid. He states that these molecules are found in the serum of blisters, in the bullæ of the epidermis, in the pus of pustules, and in the watery exudations from divided portions of skin. "The pus molecules occur in layers on the surface of the inflamed skin, similar to the manner in which the mucous molecules are placed on their appropriate membrane, and are removed in a similar manner, by an exudation of moisture; their quantity is very variable compared with the fluid containing them." Even the discharge in common nasal catarrh is regarded as pus—pus differing in appearance according to the quantity of globules which it contains, its thickness or thinness, and other circumstances. I place these novel views before you without any comment, as I shall have to revert to them when the subject of pus is before us.

The mucous secretions are liable to great variations in quantity and appearance. In perfect health their quantity is very small, just sufficient to preserve the membranes in a moist state, and to separate and carry off disorganising materials. Yet in some individuals they are habitually in much greater quantity; thus some persons have, at all times, a discharge from the nose, or from the vagina, and others constantly expectorate. From Edwards's experiments, it appears that the mucous membrane, and in fact all other textures, transpire vapour and gas as the skin does; and that sometimes pure water accumulates in mucous cavities, from condensation of the vapour, or a collection of gases may take place. Enormous quantities of mucus are frequently found in the intestinal canal. The mucous secretions in disease frequently become serous, and contain albumen, as if the fluid was merely drained from the liquor sanguinis, as in some kinds of catarrh and diarrhœa. Owing to some derangement in the earthy constituents of the blood, or some failure in the other emunc-

tories, they occasionally contain phosphate and carbonate of lime, which form into concretions.

Owing to a deterioration of the blood, again, its other proximate principles frequently exude from the mucous surfaces, as in scurvy, typhoid fevers, and other diseases. They may contain entire blood, as in the hæmorrhagic diathesis. The black colouring matter, composed of different elements of the blood, more especially of its carbon, which constitutes melanosis, is sometimes found in the mucous secretions. The elements of the bile, or urine, may be separated from the blood with the mucus, when the liver or kidneys fail to do their duty. Hence the mucous secretions may be green, yellow, milk-white, brown, black, transparent, glairy, watery, or rusty; their flavour may be morbidly saline, sweet, bland, or acrid. The saline taste of the mucous secretion, at the commencement of catarrh, is so constant and so marked a symptom, that I am disposed to think a common catarrh is a disease of the blood. Atmospherical vicissitudes suddenly arrest the excretion of saline matters, as well as the watery fluid, and the blood is suddenly thrown upon the delicate, and, perhaps, morbidly susceptible mucous membrane; hence an "antagonising" secretion of saline watery fluid, the saline matter from the blood becoming a cause of irritation. Henle states, that in cholera the rice-water evacuations consist of the mucous epithelium dissolved; and that in this disease the mucous membrane of the whole intestinal canal undergoes a desquamation, just as the skin does in exanthematous maladies. It is quite true that the various appearances of the mucous secretions are cursorily attended to by practitioners; from some of these we habitually and correctly infer states of irritation, inflammation, or ulceration, in the secreting membrane; but very frequently there is no correspondence whatever between the appearance which the secretion assumes and the state of the membrane. As in the case of the urine, morbid mucous secretions, both as regards quantity and quality, may occur, depending upon morbid conditions of the blood; but pathology has hitherto made the organ a barrier beyond which we have been forbidden to proceed.

Serous Exhalations.—These all proceed from the surfaces of closed cavities, or from the cells of the cellular tissue; they are separated from the blood through the parietes of the blood-vessels, without the intervention of a glandular apparatus, probably, in part, in the form of vapour, which afterwards becomes condensed, and they thus correspond with the cutaneous and pulmonary transpirations. They are all re-absorbed into the blood as fast as they are exhaled or secreted. They differ from the serum of the blood principally in containing a smaller quantity of albumen, their specific gravity being about 1007 or 1008, and they contain uncombined soda, with an alkaline reaction, and have minute portions of the salts of the blood.

In consequence of various deviations from the healthy condition of the blood, as well as from morbid conditions of the circulating apparatus, the serous exhalations are liable to accumulate, and so to constitute varieties of dropsy, and these effusions possess very different qualities. Sometimes little or no albumen, as in a few cases of hydrocephalus; sometimes as much and even a greater quantity than is contained in the serum of blood, when their specific gravity equals the latter. R. Marchand detected urea in the dropsical fluid in three cases of ascites; there was, on an average, about 0.5 per cent. In two of these cases the kidneys were diseased, but not in the other; in all, very little urine was secreted. Like the serum of the blood, the serous effusions may be colourless, green, yellowish, or reddish, depending on the presence of the colouring matters of the blood. They have been found black, from melanosis. Serum in the head is occasionally green. In a case of ascites in which the dropsy was suspected to be encysted, the fluid examined by Dr. Bostock was brown, opaque, tenacious, neither acid nor alkaline, not readily miscible with water; sp. gr. 1.029. It thus presented many of the characters of mucus, and it had also some of those of an albuminous fluid. Cholesterine has been found in the fluid of hydrocele. Most of these modifications of secretion occur without the serous membranes presenting any appearance of alteration whatever; and where serous effusions into cavities, and into the cellular membrane, have occurred in the greatest quantity, it has frequently happened that no disease of any organ has existed, but the blood has been found deeply altered, being sometimes little else than serum, and constituting a serous diathesis; sometimes the liquor sanguinis had lost the power of coagulating, and the causes of such dropsies have ever been such as are now well known to deteriorate the blood. Another most material circumstance is this — when these effused fluids are reabsorbed into the blood without a corresponding evacuation from some other emunctory, they frequently act as poisons, producing a sudden modification of the nervous powers, and occasioning excitement or oppression, collapse and death. When aqueous and reabsorbed, they produce the phenomena which follow the injection of water into the veins.

Saliva.—The blood undergoes another metamorphosis in its passage through the salivary glands; it gives off a complicated and very peculiar fluid, which is essential for the digestion of food, and consequently for its own renovation. The saliva is transparent, has an alkaline reaction, and contains under

one per cent. of solid matter, composed variously, according to different chemists; but in which free soda, hydrochlorates of soda and potassa, carbonate and phosphate of lime, a trace of albumen, much mucus, an animal matter, and sulpho-cyanuret of potassium, have been detected. The mucus is usually regarded as the product of the mucous membrane, since it is difficult to separate this from the glandular secretion. Raspail remarks, that when the saliva is examined under the microscope, in the morning fasting, it contains more or less of the debris of the epithelium, which is soluble in hydrochloric acid. The sulpho-cyanic acid is a compound of cyanogen and sulphur with hydrogen; thus, in solution, it contains all the elements of hydrocyanic acid, but it is poisonous only in very large quantities; it is acid to test paper, and easily detected by a salt of peroxide of iron, with which it gives a dark, blood-red solution, or by a salt of copper, which affords a white precipitate. The quantity of saliva secreted in 24 hours has been estimated at from 1 to 2 pounds: during a meal it is very considerable,—perhaps, six ounces; it is more copious in children and old people than in adults,—in the day-time than at night, and in cold than in warm climates. There can be little doubt that its qualities differ very considerably, according to the qualities of the blood of the individual.

Various morbid states of the saliva, both as regards quantity and quality, occur in diseases; it may be increased or suppressed. The former occurs as a symptom in many complaints, and is sometimes critical. The suppression of other discharges, as the urine, menses, and perspiration, will occasion profuse salivation; this may occur also without any obvious cause. Andral quotes a case in which the saliva flowed, at night, from the mouth like a clear stream of water. In some of these cases superfluous or noxious elements, or principles, are separated from the blood; a superabundance of earthy salts is thus occasionally separated, and deposited in the salivary glands, in the form of calculi, and the calculous matter which collects on the teeth is a deposition from the saliva. In a patient of M. Andral, who had a profuse ptyalism a long time before death, for which there was no obvious reason, the salivary glands presented not the slightest vestige of disease. Saliva, which in the healthy state is alkaline, is frequently acid in disease; this fact has been noticed in high quarters in this country, but no further attention paid to it. Other alterations in its qualities occur; it may be of a green or yellow colour, of a sweetish taste, or of a fœtid odour, and is occasionally sanguinolent. Substances employed in medicine, which are received into the blood, by their elements, in their proper form, or by new combinations, frequently excite this secretion, and have occasionally been detected in it; salts of mercury, those of antimony occasionally, nitric acid, nitro-muriatic acid, and the preparations of gold, are among those which excite salivation. The salivary resemble the lachrymal glands in being powerfully acted on by impressions conveyed through the nerves; but it is an enormous error in medical science and practice to assume that every alteration in the saliva, or any other secreted fluid, is the direct result of nervous impression, or of a morbid state of the organ, without regard to the blood. The saliva is a fluid by which the blood is sometimes depurated of poisons: an attempt of this kind is made in hydrophobia. Inoculation with the saliva of a rabid animal, as proved by the experiments of Hertwich, produces rabies, and this effect will result from the use of saliva collected 24 hours after death. That the poison in the saliva comes from the blood, is proved by the fact that inoculation with the blood of the animal also produces the disease. And that each set of glands separates particular molecules, poisonous or otherwise, accidentally introduced into the blood, is again shown by the fact that the perspiration of a person labouring under rabies does not produce the disease.

Gastric Juice.—The fluid contained in the stomach during fasting is transparent, of a saline taste, and neither acid nor alkaline. During digestion an acid liquid, resembling thin mucilage, is secreted. It is believed that the latter—the gastric juice—contains free hydrochloric and acetic acids, phosphates and muriates of potassa, soda, magnesia and lime, with some animal matter, and, according to some chemists, lactic acid. But the gastric juice possesses most remarkable properties, by which it is distinguished from every other animal fluid; it has the peculiar power of first coagulating milk and all albuminous substances, and then dissolving them, and of acting as a solvent of the most rigid materials; it has also a most astonishing power of counteracting and correcting putrefaction. Eberle, I believe, first pointed out that the solvent power of the gastric juice is not attributable to its acids, and Schwann has referred it to a peculiar principle, to which the term *pepsin* has been applied. The solvents of this principle are water, and dilute hydrochlorate and acetic acids, but, owing to the facility with which it is destroyed by reagents, it has not been obtained in a separate form. It is distinguished more particularly by its action on casein, since it is proved by Schwann that the gastric juice, independently of its acids or its salts, has the property of coagulating milk, and casein thus thrown down by pepsin is insoluble in water, whereas the curd formed by acids or alcohol is soluble in water, and in an additional quantity of acid.

The free acids, however, appear to be equally essential with the digestive principle to the healthy state of the gastric juice; at least we have the authority of Dr. Carswell, that by neutralising it with magnesia its solvent property is destroyed. It would appear that when substances are introduced into the stomach, the neutral salts of the blood, as the blood passes through the glands, are decomposed, the acid forming a constituent of the secretion, and the alkali remaining in the blood. Of this fluid a considerable quantity is secreted during every meal, and it has been computed at about one pound in 24 hours. Nothing is known respecting the qualities of the gastric juice when the blood is diseased, because the inquiry has not been entered into; yet there can be no doubt that it is deteriorated in quantity or quality in various maladies. Is it a vitiated gastric juice, secreted from vitiated blood, which maintains the indissoluble connection between hypochondriacism and dyspepsia?

Pancreatic and Intestinal Secretions.—The pancreatic fluid has some resemblance to the saliva; it contains albumen, a curdy matter, some salivary matter, and osmazome, and a free acid, supposed to be the acetic, but no sulpho-cyanuret of potassium. Like the salivary glands, the pancreas is rarely diseased; but it has been found to contain calculi, sometimes consisting of carbonate, and sometimes of phosphate, of lime, seeming to indicate that earthy matter may be separated from the blood in undue quantity by the pancreas; and that the secretion of healthy pancreatic fluid from the blood is essential to digestion seems to be established by the fact that where it has been totally suppressed the individuals have died in a state of extreme emaciation. We know little respecting the proper *intestinal juice* except that it is probably acid during digestion, more especially in the upper part of the intestinal canal, and liable at times to be secreted from the blood in undue quantities.

Seminal Secretion; Fluid of the Vasa Deferentia and Vesiculæ Seminales.—The spermatic artery ramifies in extremely numerous and minute branches upon the whole internal surface of the tubuli seminiferi in the body of the testis, whence the seminal secretion proceeds. This secretion is peculiar, and perfectly distinct from any other animal fluid. It has some of the characters of mucus, but its odour, and the changes which it undergoes on spontaneous decomposition, are peculiar. According to Vauquelin's analysis, it is composed of water 900 + phosphate of lime 30, + soda 10, + extractive matter 60. The discovery of Hamme and Leeuwenhoeck, that it contains animalcules, has been confirmed by Spallanzani and all modern observers. They have a definite figure easily recognised (Table XXI., fig. 19), and are found in the seminal fluid of different orders of animals, warm and cold-blooded, and in birds. Hunter remarked that the fluid of the vesiculæ seminales appears to differ from that found in the testes, and believed that it has a distinct use. The circumstances that these organs are wanting in some animals, and do not open into the vas deferens in others, are in favour of Hunter's views; but Dr. Davy has lately published an important paper on this subject, containing the results of a patient examination of the fluids in question, obtained from twenty individuals after death, from various diseases. The fluid obtained from the portion of the vas deferens before it enters the abdomen, accorded in general with the description usually given of the seminal fluid, and that found in the vesiculæ did not materially differ; both contained an abundance of spermatic animalcules. On standing a few hours, these fluids separate into an opaque part, which subsides, and a supernatant transparent part, and the latter is rendered almost gelatinous by alcohol. Examined a few hours after death, the animalcules were alive and active; at a late period they were motionless and dead. In different cases the appearance of the fluid differed materially. In the body of a maniac, for instance, examined fifty-seven hours after death, that of the vas deferens resembled pus, and that from the vesiculæ appeared as if slightly tinged with hematosine, and the animalcules were all dead. In an emaciated consumptive case, six hours after death, the fluids did not deviate much from the usual character, but contained no vestiges of animalcules, nor distinct globules. In another case of consumption, eleven hours after death, the vesiculæ contained a small quantity of brownish, thick, slightly viscid fluid; the vas deferens an extremely minute portion, like thin starch, and both contained the fragments of animalcules and distinct globules. In every instance when the fluid of the vesiculæ contained animalcules, they were found also in the vasa deferentia, and when the former contained none, the latter also was free from them. M. Bischoff found the animalcules in the vesiculæ seminales of a beheaded criminal in whom an ejaculation had taken place.

In all these cases the fluid of the testes was examined, and, except in two instances, no animalcules could be found. It was transparent, generally contained globules nearly equal in diameter to blood corpuscles, and invariably contained dense particles, apparently spherical, from 12 to 15 times smaller, and which Dr. Davy believes to be the ova of the spermatic entozoa. In the two instances in which animalcules were found in the fluid of the tubuli, the quantity of the fluid was greater than in the others; and Dr. Davy thinks it probable that in health they exist invariably in the tubuli. The cir-

cumstance that these animalcules are detected in the vasa deferentia and vesiculæ when they cannot be detected in the testes, is regarded as being in favour of their origin *ab ore*, and it is inferred from these observations that the vesiculæ serve as reservoirs for the seminal fluid, and also furnish mucus, and perhaps some other fluid, for admixture with the semen. The latter is inferred from there being to a certain extent a difference between the two fluids, more especially observable in that of the fundus of the vesiculæ. Dr. Davy does not attempt to point out in what that difference altogether consists; but thinks it is chiefly in the former being more dilute, and perhaps more bland and mucous. The fluid which passes from the urethra after an alvine evacuation in a healthy person, separates on rest into two portions,—a sediment which is opaque, and always contains animalcules, the majority of which are dead, and a clear supernatant fluid. It is inferred by this physiologist that the vesiculæ are both cloacæ and reservoirs of the seminal secretion.

Dr. Davy's investigations seem to show, 1. That chronic diseases terminating in death arrest the secretion of the testes, or the production of animalcules; 2. That the contents of the vesiculæ and vasa deferentia, under the influence of disease, retain longer their characteristic qualities than the contents of the tubuli; 3. That there is least fluid in these parts, and that it is most altered in chronic diseases of the abdominal viscera, and especially of the intestines. The spermatic fluid rapidly undergoes change on exposure to the air, but the animalcules can be detected for a long period; in one instance Dr. Davy found them after ten weeks, in putrid fluid, which had been kept in a temperature of from 50° to 60° Fah.

There are other secretions which, although they never occur in sufficient quantity to produce any remarkable effect on the quantity of the blood, may, by their suppression, affect its quality, in some unknown manner, or by their morbid characters may indicate a morbid state of the blood, just as much as of the organs in which they are produced; the *tears* are limpid, saline, alkaline, owing to the presence of free soda, and contain chiefly carbonate and phosphate of soda, and an animal matter, which, by some chemists, is regarded as mucus, and by others as albumen; they may be suppressed or secreted profusely, and discharged involuntarily in acute diseases; epiphora has been known to occur as an epidemic febrile complaint; hematosine, urea, and other animal principles, have been detected in them, and they may be unusually viscid or acrid.

Cerumen — an emulsive combination of liquid fat, albumen, a peculiar animal matter, a yellow, very bitter extract, an extract soluble in water, alkaline, and earthy lactates, but neither chlorides nor phosphates: this secretion is also liable to changes in quantity, quality, and consistency; its suppression has been followed by acute diseases, and its profusion has occasionally preceded their solution.

The Prostatic Fluid.—The gland which bears the name secretes and emits a lactescent fluid, but neither the organ, nor the nature or uses of the fluid, is sufficiently known to enable us to form any opinion as to its effects on the blood; its secretion is sometimes extremely viscid and abundant, and is then described as a ropy mucus.

Fluid of the Thyroid Gland.—The use of this gland and of its secretion is just as little known. Andral says, it consists of a number of granules containing a viscid fluid. In a state of disease it may contain a liquid like serum, honey, jelly, or more solid secretions. In bronchocele it has been long suspected that some principle is taken into the blood, either by means of the air respired, or by the food or drink, which produces a specific effect on this gland; and the influence which iodine, when received into the blood, has over its affections, in some of their forms, countenances this opinion.

Explanation of Table XXI. (*See next page.*)

Fig. 1. The most common appearance of uric acid; prismatic acid; rhomboidal crystals.
2. Rhomboidal prisms of uric acid.
3. Uric acid.
4. Ditto, very large crystals.
5, 6, 7. Urate of ammonia.
8. Black globules spontaneously developed in acid urine.
9, 10. Ammonia — magnesian phosphate (Berzelius); right rectangular prisms.
11. Bibasic ammonio-magnesian phosphate (Berzelius).
12. Octohedral crystals of chloride of sodium.
13. Oxalate of lime, by precipitating the lime in urine with oxalic acid.
14. Urea.
15. Sulphate of quinine in urine.
16. Hippuric acid, from the urine of a horse.
17. Epithelium in urine.
18. Pus in urine.
19. Spermatic animalcules.
20. Mucus in urine.
21. Pus globules.
22. Milk globules.
23. Plaster epithelium (Henle).
24. Cylinder ditto.
25. Ciliary ditto.

TABLE XXI.

CLINICAL LECTURES

ADDRESSED TO THE

STUDENTS OF THE MIDWIFERY CLASS

AT THE ROYAL SCHOOL OF MEDICINE,

BIRMINGHAM,

BY

J. T. INGLEBY, M.D.,

Fellow of the Royal College of Physicians, Edin.

LECTURE VII.

ON UTERINE HYDATIDS.

GENTLEMEN:—Before you examine the specimen of uterine hydatids now before you, I will say a few words on watery discharges in general, which emanate from the uterine system. The source of some of these discharges cannot be misunderstood, such, for instance, as tumours, both of a mild and of a malignant kind, and morbid states of the lining membrane consequent upon delivery. But a watery discharge is not unfrequently a prominent feature of a really obscure disease. It sometimes may be traced to a communication having been formed by ulceration between the uterine system and the dropsical ovarium, the thinner part of the encysted contents coming away in gushings; or the fluid may issue from the peritonæal sac by a healthy canal, as the Fallopian tube. The disease miscalled dropsy of the uterus may consist in an excessive quantity of fluid from some imperfection in the structure of the ovum, as well as from a disease of the lining membrane of the uterus in its unimpregnated state. It is true the quantity of fluid may be equal to distend the uterus, presenting perhaps a fluctuating tumour, the fluid being prevented from escaping by a tenacious mucus occupying the cervix uteri. But watery discharges are also occasioned by the disease termed hydatids, and to this peculiar complaint I intend to confine my present remarks. You have already seen a woman who is the subject of such watery discharges. Here is a large mass of hydatids, the expulsion of which was attended by pain and hæmorrhage; the quantity which was expelled could not be less than a quart. The hydatids are of all sizes, from a pin's head to the size of a large grape, and are connected by fine pedicles. Hydatids are never directly in contact with the surface of the womb, but are surrounded by an investing membrane, which is in fact the decidua. The history of this case presents nothing that is not common to uterine hydatids in general; but, aware of the perplexity by which these diseases are characterised, I thought it a fit opportunity for bringing the subject fully before you, apprising you that the extent of our information on it is exceedingly defective.

First, what are we to understand by the term hydatids as applied to the uterus? I need scarcely observe that TRUE hydatids, wherever situated, are regarded as a species of acephalocysts, or cysticerci, and may originate in the uterus just as in any other organ; but this occurrence is very rare when compared with the hydatid or vesicular formations of pregnancy, and it is material to distinguish the two forms of disease. Madme. Boivin's distinction is clear and simple:—"The membrane of the true hydatid (it is observed) is soft and pulpy, tolerably thick, and easily detached. That of the vesicles of the uterus is thin, tough, or leathery, resembling serous membrane, presenting blood-vessels sometimes upon its parietes, very similar to the small serous cysts which often surround the ovaria and Fallopian tubes."* Each hydatid, according to Nauche, possesses three coats.

These hydatid vesicles, when freed from sanguineous discharge, usually present a pellucid appearance, varying greatly both in their size, form, and number; in some instances resembling a bunch of grapes, in others resembling frog's spawn. There is also a great difference in their connection with the womb; for, as already observed, the hydatids of pregnancy, though occupying the cavity, are not directly in contact with its surface, but are invariably surrounded by the deciduous membrane, while this is not so with acephalocysts. It is very possible that organised lymph may be formed, just as in cases of dysmenorrhœa, but this adventitious production does neither necessarily nor usually take place; and, moreover, acephalocysts may not only be attached to the lining membrane, but generated in the substance of the womb. Authors on this subject would have been less perplexing had these distinctions been preserved. The difference between the hydatids of the chorion and this species of hydatids is most obvious; the one is peculiar to females in a state of pregnancy, the other is common to both sexes. An important question still remains to be determined, whether or not these vesicular bodies are ever generated in the womb irrespective of intercourse between the sexes. Contrary to the prevailing opinion, several eminent men (including Gardien, Denman, Sir M. Clarke, and Dr. Evory Kennedy,) seem to think it possible that the disease may arise as an original production of the womb; and although Professor Burns refers the production of hydatids to a degeneration of the ovum, he alludes to their being formed "in consequence of coagula or part of the placenta remaining in utero." An interesting case of hydatids in the substance of the womb has just been

* Boivin and Dugé's "Pract. Treatise," by Heming, p. 161.

published by Mr. Wilton, of Brighton.* The author does not enter into the nature of these hydatids, but I take it for granted they were acephalocysts; for how can the hydatids of pregnancy take root in the uterine substance, the decidua and the lining membrane intervening? Mr. Wilton's patient died, and when the body was examined a highly varicose state of the veins was seen at the posterior surface of the fundus, beneath the peritonæum, constituting a rounded tumour. In the diseased part there was an opening, which contained a coagulum. This opening was proved to be the immediate cause of death, by an effusion of blood in the abdomen, to the extent of several quarts. A mass of hydatids protruded into the cavity of the womb, portions of the mass being firmly adherent to it. In the vicinity of this mass the lining membrane had degenerated in character, and was covered by patches of lymph. On the removal of the adherent hydatids it was found that the lining membrane was partly wanting, and that masses of hydatids were imbedded in the structure of the organ. Towards the fundus they existed in nests of various sizes, and produced the rounded tumour at the posterior surface of the fundus, which has already been described. I beg also to refer you to Dr. Andrews's paper on this subject, entitled "Cases of Hydatids in the Uterus, simulating Pregnancy."† Four cases are detailed, two in married women, and two in unmarried females of the ages of sixteen and seventeen. In the last case the catamenia are alleged never to have appeared, and the hymen is said to have been entire. The statement which Dr. Andrews has made cannot be questioned, and what does it prove? Simply that hydatids, or, rather, acephalocysts, may be passed by virgins. The origin of acephalocysts is still very obscure; but the origin of the hydatids of pregnancy, as a degeneration of the villi of the chorion into vesicles, is no longer a matter of doubt. It has been shown that the hydatids of pregnancy cannot exist independently of serous membrane, like the membranes of the ovum. On this subject you may with advantage consult the researches of Madme. Boivin, "On the Origin, Nature, and Treatment of the Vesicular Mole."

My friend, Dr. Montgomery, has confirmed the correctness of his previously expressed opinion, by exhibiting before the members of the Dublin Pathological Society a specimen of uterine hydatids, by which he was enabled to demonstrate their origin in a most satisfactory manner: "The ovum was completely covered by the decidua reflexa; but when that was turned back the hydatids were seen growing from the villous surface of the chorion. There was another peculiarity in their mode of attachment and growth, worthy of notice. At first one or two sprung from a single, fine, thread-like stalk, then from these one or two more, and so on, until at length a large bunch of hydatids was formed, hanging from the chorion by the original delicate single stalk."‡

I now submit to your notice a preparation of some value, as exhibiting a single hydatid. The villi of the chorion are very distinct; the extremity of one of these bodies has bulged out, constituting a perfect hydatid, the size of a pea, and this was evidently the commencement of the disease. Although it is but little of the obscurity attaching to this question which I can hope to dispel, yet as female reputation and professional character may be seriously involved by erroneous views, I will briefly state what my own impression is on the point before us. I assume it as proved that a vesicular or hydatid state of the chorion is always the product of a conception which has become degenerated. I readily allow that a membrane, closely resembling the deciduous membrane of pregnancy, may be formed in certain diseases of the womb. I have, indeed, a specimen of this kind which cannot be distinguished from the real membrana decidua. But it is quite incomprehensible how these vesicular bodies can be generated in the virgin uterus. Opportunities have occurred to me of inspecting substances which were passed from the virgin uterus, and which might have been regarded as hydatids. I here exhibit to you several of those bodies, which were passed a few days ago by a lady of unblemished reputation, who has been the subject of uterine hæmorrhage for the last twelve or fourteen months. When first discharged they presented the appearance of small bladders (fish-bladders the patient called them), but on a close examination they proved to be portions of mucus of an oval form, containing air, and originating in a morbid state of the lining membrane.

In the ordinary form of the degeneration the hydatids are innumerable. In the second variety, described especially by Sir C. Clarke, there is a single cyst only. If I may form a judgment from my own experience, this variety of hydatid is a very unusual one; and I cannot but think that the large and sudden gushings of fluid by which its presence is said to be characterised, more frequently proceed from a sac formed during pregnancy between the amnios and the chorion. Natural pregnancy and

* See LANCET, Feb. 1, 1840.

† See "Glasgow Medical Journal," No. 4.

‡ "Dublin Journal of Medical Science," No. 44, vol. xv. p. 299.

hydatids may, indeed, co-exist. Burns says a solitary hydatid is oftener combined with pregnancy, or with a mole, than met with alone; and that he has seen the hydatid expelled some weeks first. Indeed, according to this author, numerous small hydatids may be discharged, and yet pregnancy go on to the full time. It is impossible to calculate the length of time an hydatid formation may remain in the womb, though it has been known to be retained for some months after the natural term of pregnancy had expired. I conclude, however, that the expulsive action usually comes on before the completion of the fifth month. An hydatid pregnancy may not lead even to a suspicion of its existence, but after a time the evidence will be more or less characteristic of a state of pregnancy, including the suppression of the menses. I am not aware of any symptom, singly considered, that can be regarded as distinctive of the disease, and yet there are several points on which a certain degree of reliance may be placed. During the first few weeks the abdomen is disproportionately large to the period of pregnancy; in some instances a discharge of watery fluid every now and then takes place. Although liable to some diversity of character, the discharge is, for the most part, of a serous nature, devoid of colour, and comes on at irregular periods, in gushes, corresponding in this respect with the bursting of one or more of the vesicles. After a given time the empty and collapsed sacs are expelled, with hæmorrhage and pain, though *pain* does not necessarily attend their expulsion. The watery discharges are sometimes tinged with blood, and in some rare instances the discharge has been almost altogether bloody, even for many months together. The watery discharge does not depend exclusively upon the bursting of a vesicle; neither does the hæmorrhage always arise from detachment of the mass, but from a portion of the lining membrane of the womb which is unoccupied by the hydatid, and in a state of increased action. In this respect the blood is derived from the same source as in many cases of uterine polypi, namely, from the lining membrane generally, and not from the polypus itself. Nothing short of an inspection of the hydatids which have been voided can enable us to decide correctly upon the real nature of the disease: usually the fœtus is either dead, or too small for its movements to be distinguished, consequently we derive no assistance from the stethoscope, and the phenomena of ballottement will not take place. The neck of the womb does not, it is said, undergo its usual development, but that circumstance in itself affords only presumptive evidence of the existence of hydatids,—supposing also the uterus to be decidedly enlarged, the enlargement not to exceed the firmness of pregnancy, and the signs of pregnancy to be tolerably marked.

Dr. Montgomery mentions having noticed, in two cases of hydatids, a creeping kind of movement, simulating the motions of the fœtus, at so early a period of gestation as three months and a half. In what manner this peculiar movement is produced, and what degree of reliance is to be placed upon it as a means of diagnosis, remain to be seen.

The hæmorrhage which attends the expulsion of hydatids may prove immediately dangerous to life. When you recollect that hydatids may be attached to every part of the uterine cavity, greatly exceeding the extent of placental attachment in natural pregnancy, you will not be surprised at the hæmorrhage being severe. But the expulsion of hydatids, even when few in number, and when the uterus is small, may also prove ultimately a source of danger. The reason is obvious. The uterus, when considerably developed, contracts powerfully, as in labour; expels suddenly a mass of hydatids, some quarts, perhaps, and being completely evacuated, returns slowly to its ordinary unimpregnated state; the hæmorrhage is severe, but soon over, and there is no tendency to a recurrence. But when the development of the womb is inconsiderable, pain and hæmorrhage ensue, from time to time; only a few hydatids are expelled, attended by hæmorrhage, and a discharge of a serous fluid; the hæmorrhage is arrested, and yet the expulsion is incomplete. After an uncertain period of time the paroxysm recurs, the strength ultimately becomes much impaired, and under an attack of severe hæmorrhage the danger becomes imminent. The idea that the uterus is left in a great measure emptied, on the close of each expulsive paroxysm, seems to derive some support from the annexed case:—

A married woman, of middle age, who had never borne children, on several occasions voided hydatids from the womb, attended by hæmorrhage, and a discharge of serous fluid. She was seized with a disorder of the mucous membrane of the stomach, attended by vomiting and slight fever, and whilst labouring under this attack the hæmorrhage recurred, accompanied by the expulsion of more hydatids; she became comatose, and died within a few hours. I did not see the patient during life, though I was present at the post-mortem examination. In the cavity of the uterus a single hydatid only was discovered, and a rough, shaggy surface, to which the hydatids had been attached, which were discharged shortly before death; the organ was otherwise healthy, not much larger than natural, and the body was free from disease. The woman, whose case is described by Sir E. Home, died after an hæmorrhage with the same kind of symptoms, viz., vomiting, feverishness, and spasms over the whole abdomen. The body was examined, and the

hydatids were found to occupy every part of the uterine cavity.*

The circumstance I have already adverted to, of the womb returning to a quiet state, many times in succession, on the expulsion of a few vesicles—a considerable time elapsing between each act of expulsion—has led me to think that the chorion has the power of reproducing the hydatids, or else that the smaller vesicles continue enlarging, until, by some fortunate circumstance, the nidus is expelled, and another formation rendered impossible. Under no other view can I understand the vexatious kind of action which, from time to time, the uterus takes on.

In the treatment of hydatids, attended by a material enlargement of the uterine cavity, there can be no difference of opinion. The principles which are generally applicable in midwifery must be acted upon, and such means enforced as tend to secure an effective contraction, and, consequently, to prevent hæmorrhage. We have the authority of Sir C. Clarke to justify passing the hand and removing the hydatids, supposing the hæmorrhage to be considerable, the uterus to be much enlarged, and its orifice to be sufficiently relaxed for the purpose, subsequently supporting the abdominal parietes by a bandage. The ergot of rye is a remedy especially calculated to promote the contractions of the womb when it has attained a moderate enlargement; and, provided the evacuation of its cavity be indispensable to the patient's safety, the propriety of administering that medicine would seem undoubted; but in the absence of a moderate degree of enlargement, I should expect but little benefit from the ergot, and I have never been able to satisfy myself of its superiority over other medicines in cases of simple menorrhagia.

The treatment of hydatids, where the enlargement is *inconsiderable*, will be attended with difficulty; the indications are twofold, viz.: 1st, to evacuate the uterus; and, 2nd, to induce a new action in the lining membrane. The ergot of rye merits a trial, although less likely to succeed than under the circumstances just stated. Tonic medicines would seem also to be especially indicated; the muriated tincture of iron, or the sulphate of zinc, may be taken in doses as large as the stomach will bear, and the cold bath may be used daily. One of the most important objects of treatment has reference to the hæmorrhage, and several instances have been mentioned to me where the hæmorrhage was protracted and went on to the destruction of life. The remedies calculated to arrest hæmorrhage are the plug, the acetate of lead, and cold injections. Unquestionably the plug is capable of checking an active hæmorrhage, although it may not altogether stop the draining, and as it is a perfectly safe remedy in cases where the enlargement does not exceed the size of the uterus at the fourth month of pregnancy, it may be used with the same confidence as in a case of abortion. The acetate of lead may be administered either in acetic acid, combined with opium, or with extract of henbane, and cold water may be injected from time to time into the bowels. Small portions of ice, dissolved slowly in the mouth, prove exceedingly grateful in many active hæmorrhages from the uterus, but when the disorder depends upon the presence of an extraneous body, I should have but little confidence in that remedy. Under any circumstances the sedative effects of cold, in whatever way employed, must be ill adapted for states of great depression. Injections used with the view of reaching the cavity of the uterus, though employed even in the time of Œtius, have fallen nearly into disuse. In a material distention of the uterus by hydatids, injections would prove useless, if not positively injurious; but in protracted and frequently recurring paroxysms of pain and hæmorrhage, the uterus being small, and unable effectually to cast out its contents, and the usual means having failed, injections might act beneficially. Cold water, for instance, may have the effect of exciting the contractions of the womb and emptying its cavity; it may, perhaps, be justifiable to employ a weak stimulating injection, gradually increasing its strength so as ultimately to overcome the morbid condition of the lining membrane. The utmost circumspection, however, must be exercised, lest inflammation should be produced, or lest the degree of inflammation should exceed what is necessary to cure the disease; for although the morbid condition of the womb can scarcely be overcome without inducing more or less inflammatory action, yet chronic affections of the uterus have frequently followed their employment. Even the mildest injections have been known to excite inflammation, and it is only in cases where the discharge is protracted, where its effect on the general health threatens the destruction of life, and where the usual treatment has failed, that the practice can be recommended. The nitrate of silver, as a stimulating injection, would seem well-adapted for the purpose; but alum, zinc, or other astringents, may answer equally well. In Mr. Watson's case the sanguineous discharge "finally only yielded to injections of port wine and water."†

A case of hydatids, replete with interest and instruction, lately occurred in this town, in the practice of my friend, Mr. Thomas Chavasse, to whom I am much indebted for

* Vide "Transactions of a Society," &c. &c., vol. ii. p. 300.

† "Trans. of Provincial Med. Association," vol. ii. p. 354.

the particulars. As Mr. Chavasse contemplates the publication of the case, I shall make only a very brief allusion to its most distinguishing features. A lady was attacked about the fifth month of her pregnancy by hæmorrhage and pain, accompanied by the expulsion of a mass of hydatids, probably three or four ounces. The hæmorrhage ceased for a short time, but returned at intervals for upwards of a year, and was attended occasionally by severe pain, and the expulsion of a single hydatid resembling a hot-house grape. The symptoms became more alarming, the hæmorrhage resisting every mode of treatment which could be devised. A state of anæmia ultimately ensued, and, on the conviction that the patient's life depended on the removal of the hæmorrhage, it was determined to use a stimulating injection. The third injection was impregnated with oxyde of iron, and, after using it several times, its strength was increased by the addition of one drop of the tinctura ferri sesquichloridi to each ounce of the oxyd. injection, and gradually increasing the quantity of the tincture to four drops. Its employment was followed by so much pain and tenderness, as not only to require a suspension of the injection, but also to demand a mild antiphlogistic treatment. At one time severe inflammation supervened, and the patient seemed to be sinking under irritative fever, but after this no further discharge took place; but, at length, under the tonic plan of treatment, she perfectly recovered, and the uterus has since resumed its natural functions. In this case the removal of the disease is clearly referrible to the stimulating action of the iron on the lining membrane. The treatment of acephalocysts in the uterus by iron has much to recommend it; that metal, indeed, has been supposed to exert a specific action in such cases. However this may be, the principle is quite inapplicable to the hydatid formations of pregnancy, and injections of iron can only act like stimulating injections generally. In order to ensure the injection reaching the cavity of the womb, it must be conveyed there by means of an elastic tube attached to a small gum-elastic bottle. The tube should have a round opening at its extremity, and should be passed a little distance within the neck, or even into the cavity of the womb.

In conclusion, Gentlemen, I have merely to remark—what, indeed, you must now be aware of—that an extensive field of inquiry is open to the diligent labourer in his investigations of this disease. We have very much to learn on the subject of uterine hydatids. If any really instructive account of the disease has been published, I have not had the good fortune to meet with it; and, although defective in a practical point of view, Mad. Boivin's treatise is the best I have read.

ROYAL INSTITUTION.

Friday, March 28, 1840.

LECTURE

ON THE

STATISTICS OF MORTALITY AND DISEASES IN LONDON.

By Dr. George Gregory, *Physician to the Small-Pox Hospital.*

Dr. Gregory commenced by stating, that the Bill for the Registration of Births, Deaths, and Marriages, passed the legislature in August, 1836, but was not brought into operation until July, 1837. It had now been two years and nine months in operation, and he proposed, on the present occasion, to lay before the members of the Institution the results of the Act. Continental nations had long enjoyed the benefits of national registration, and it had been long desirable that England should have the same advantages. The Registrar-General had published a valuable Annual Report, conveying important information; and on the 5th of January of the present year was published the first of a weekly series of Bills of Mortality, under the sanction of the same authority. These Bills were on an improved plan, affording a fund of curious and useful information, and their accuracy was so great that perfect reliance might always be placed in them. They were likely hereafter to attract a large share of public attention; they afforded to Insurance Companies and Friendly Societies a solid foundation for all calculations on the value of life; the political economist would find in them many valuable hints on the growth of population; the moralist would be able to trace in them the effects of concentration on the character and habits of a people; and the physician would find them to present him with universal information in every department. The metropolis, also,—that miniature world in which we lived—would always prove an interesting subject of inquiry, in whatever point of view it was considered. On all these accounts the lecturer was desirous of bringing the subject before his audience. In order to make the subject fully understood it would be necessary to give some information, which might not be possessed by all; he should, therefore, 1st, supply that preliminary information; 2nd, give a general idea of the mechanism by which the Registration Act was carried on; and, 3rd, the general results which it had effected.

Cities might, in some degree, deaden the natural desire we had to inquire into the affairs of our neighbours, but they did not extinguish it; the newspapers were looked to, daily, for information respecting births,

deaths, and marriages: the information thus afforded, however, was exceedingly meagre. The "Times" of that day recorded 3 births, 2 marriages, and 5 deaths in the metropolis; this was about the daily average, the total in January last being 72 births, 40 marriages, and 140 deaths; that was an average of 5 deaths, 3 births, and 2 marriages daily. A reasonable curiosity would prompt the inquiry as to what proportion these numbers actually bore to the real amount of births, marriages, and deaths, which took place in the metropolis in 1 day, 1 month, or 1 year. We should hardly, however, stop short with that question; all would have a natural curiosity to ascertain at what age the several individuals died—of what diseases they fell victims. Occasionally the newspapers gratified us on those points. Many, however, might carry their desire of information further, and wish to know—

1. What were the prevalent disorders by which the metropolitan population was carried off, at any particular year or season.

2. What districts of the metropolis were healthy, and which afforded most employment to the doctor and undertaker, the low districts or the high ones, the densely populated or the suburban districts.

3. What ages of life were most fruitful of occupation to those individual members of the community; and what were the proportions of coffins made for the young, the adult, and the aged?

4. What influence did atmospheric variations, and the peculiarities of our climate exert on the disorders and mortality of the metropolis; and what was the relative mortality in different seasons? What was the proportion of the metropolitan population that died of old age and natural decay, and of such chronic disorders as were incidental to the advance of life, compared with those who were carried off by fevers, epidemic disorders, and the maladies, such as small-pox, measles, hooping-cough, typhus, and cholera, and such acute and rapid diseases as were independent of age; and what was the proportion of cases which fell to the care of the physician, and what to that of the surgeon.

6. What were the number of births in the metropolis, as compared with the population? and were they sufficient to compensate for the annual mortality? Did population increase? If so, at what rate? What was the amount of influx from rural districts?

7. What relation existed between the amount of sickness and mortality? In other words, how many sick were there in London to 1 death? At what rate do the same diseases incidental to man prove fatal?

8. What was the ratio of metropolitan to rural mortality; and what was the mortality of other large towns in England compared with that of London?

9. Was London, with its immense population, closely packed, and breathing the same air, a healthy or an unhealthy locality? To what cause was its healthiness or unhealthiness to be attributed?

An answer to these interesting questions involved an acquaintance with the statistics of disease and mortality; the object of the lecturer was to explain this, so far at least as it applied to the metropolis. Some, however, might ask what was the meaning of medical or vital statistics? It was the science which illustrated the natural history of man in health and disease, by the application of numbers, having for its object the determination of the rate of mortality in the different regions of the world; to ascertain the comparative salubrity of different countries, and the kind, extent and severity of disease prevailing in different districts, in reference to sexes, ranks, trades, occupations and ages, and under varying circumstances of political existence and social comfort.

Boundaries of the Old and New Metropolis.—In 1593, when bills of mortality were first issued, the metropolis was held only to include the City and Liberties (109 parishes); in 1660, the city of Westminster and the borough Southwark; and such portions of Middlesex and Surrey as lay contiguous to these, and were within call, had been added. The total number of parishes was then 130. As the metropolis extended parish was added after parish, till in 1758 147 parishes were included in the term metropolis; in 1831, Mr. Rickman extended the term still more widely, but not wide enough to meet the necessities of the case. The Registrar-General had acted most wisely, by taking the more enlarged explanation of the term metropolis, and had included under it all those districts whose character was metropolitan. Any one, for instance, might, at a glance, perceive the difference between the inhabitants of Camberwell and Croydon, one being metropolitan, the other rural. The suburban population, in its general character, amalgamated perfectly with the more centrally metropolitan. This was owing to the constant intercourse taking place between the parties. The metropolis was situated on an area of 70 square miles, was of an irregular figure, of 9½ miles in diameter, and, taking St. Paul's as the central point, extended nearly five miles in all directions. Its extreme points, north and south, were Stoke Newington and Dulwich, and, east and west, Hammersmith and Woolwich. The great distinction between the old and new metropolis consisted in the addition of four important districts, Marylebone, Paddington, and St. Pancras, on the north; Greenwich, Woolwich, and Deptford, on the east; Camberwell, on the south; and Kensington, Ful-

ham, Hammersmith and Chelsea, on the west. These together added one third to the old metropolis. The Registrar-General had divided London into five great divisions, North London, South London; East, West, and Central London: South London was defined by the Thames; North London was bounded by Oxford-street, Tottenham-court-road, Clerkenwell, and up to Hackney; Central London had for its boundaries the City-road, Old-street, the Minories, Tower-Hill, and the Thames; the Eastern district extended to the Lea River; the Western had for its eastern boundaries Wardour-street, Princes-street, Leicester-square, down to the Strand.

Population.—It is very difficult to determine the population of the metropolis in the 17th and 18th centuries. Major Graunt, in the time of Charles the Second, estimated the number of inhabitants in London at 384,000. According to Mr. Finlaison, all England and Wales, in 1730, contained only 5,687,993, and it doubled itself in 93 years; for, in 1821, all England and Wales contained 11½ millions; and, in 1831, 13,897,187. The metropolis then contained about one-ninth of the whole kingdom. On the same principle, London contained, one hundred years ago, somewhat more than half a million (568,000).

We had now better means of ascertaining the exact amount of the population. It might not be known to all, that, by a Bill passed in the year 1800, it was decreed that a decennial census should take place. It had already taken place four times, viz., in 1801-11-21, and 31, and another would take place in May, 1841. Measures had been already taken to proceed with it. In the extended metropolis the population

In 1821	was	1,328,671
1831	„	1,594,890

And the total, in 1840, was computed at 1,955,000.

Growth of Metropolitan Population.—The metropolis, ever since the year 1801, has steadily advanced in population, at the rate of 18 per 1000 annually, or nearly two per cent. Some districts have, however, increased much more than others; for, while Central London has received but a very small addition, the northern division has been of very rapid growth, increasing at the rate of three per cent. per annum; in nine years it is calculated to have added 117,000 to its population; that is, from 1831 to 1840, to have increased from 297,000 to 414,000. An increase of 18 per 1000 gives a total annual increase to London of nearly 36,000, a population equal to that of York! According to calculation the population of London in 1841 will exceed 2,000,000.

In ten years (1831-40) London has added 400,000 to its population, or as many as the entire population of the metropolis in the reign of Charles the Second,—a fact which seems scarcely credible. It will be interesting to observe if this calculation be borne out by the results of the census to be made in 1841.

Density of Population.—It may create some surprise to know that here in every square mile of surface there live 26,000 inhabitants. In the five south-western counties of England, including many large towns, as Plymouth, Exeter, &c., the number of inhabitants to each square mile is only 230; that is, in the same extent of ground which is occupied by 113 persons in London, there is only one in Devonshire and Cornwall.

Now, can we explain this extraordinary growth of the population? The registry of births is incomplete; parents, by the Act, are compelled to give information on application being made to them, but not to initiate it. This defect in the Registration Act was foreseen, and a discussion took place upon it in Parliament. It was thought by the opponents of the compulsory registration of births, that it might disconnect the naming of children from the holy rite of baptism, and admission to the Church. The difficulty on this subject was undoubtedly great, and one very unfortunate for statistics: it prevents us from saying exactly how much of the increase of the metropolis is owing to the excess of births, and how much to the influx of emigrants. The registration of births is so far imperfect, but the poorer orders are becoming more used to it, and, perhaps, in a few years, a compulsory clause will be added, to meet a few refractory cases, without offending the religious scruples of any party in the State.

At present we are therefore left somewhat to conjecture on this point. The Registrar-General, however, calculated that over the whole country there are, to every 1000 of the population, 20 deaths, 8 marriages, and 30 births annually: the births, therefore, exceed the deaths by one-third; the deaths in the metropolis being 52,660, one-third of which is 17,333; this makes a total of 69,333 births: this increase alone would not be sufficient to account for the increase of population, for London receives 90,000 annually. Hence, to keep up its population, and add to it 18 per 1000, calculating the births at 70,000, there must be still 20,000 strangers, and these chiefly adults.

Relative Ages of Population Coexisting.—A full understanding of the new Tables requires some knowledge of a favourite problem with all statistical writers, viz., out of a population of 10,000 souls, how many are young (1 to 15); how many adults (15 to 60); how many aged? The proportion of these is pretty nearly the same in all coun-

tries, although there may be slight variation from local circumstances, the influx of strangers, &c. In Sweden, in 1830, there were under fifteen, 33; adults, 59; aged, 8; in 100. In England, in 1821, 40 were young, 53 adults, and 7 aged; and in London, in former times, there were 33 young, 62 adults, and 5 aged. In the summer of 1840, Mr. Farr calculated that in London there will be

Under 15....	632,833	or 35 per cent.
Adults.....	215,618	„ 60 —
Aged	106,549	„ 5 —
	1,955,000	100

That is, thrice as many adults as young people, and six times as many children as old people.

Proportion of the Sexes.—In all parts of the world more males are born than females. Mr. Finlaison says, that for 1,000,000 females born, there are born 1,050,985 males, making an excess of nearly 51,000 in every million; the proportion is 83 to 79, or 21 to 20. The excess of males, however, disappears at a very early period of life, so that at every period of age after 15 there are more females living than males; and thus, in a general enumeration of the population, where adults always predominate, we have the females in excess. In 1831, there were 739,719 males, and 855,171 females, in London; being a proportion of 8 females to 7 males.

Old Bills of Mortality.—The parochial registration of births, deaths, and marriages, was one of the early fruits of the Reformation; the parish registers of christenings and burials began in 1538. The Metropolitan Bills of Mortality owed their origin to the anxiety of the public about their own danger. They began on Dec. 21, 1592, and were under the care of the incorporated parish clerks, who had their origin in 1233. The year 1593 was a plague year, the deaths from which were 11,503. In 1657, the Bills of Mortality assumed nearly the same form that they now exhibit. Some little improvements, however, took place in them in 1665, the great plague year, when 68,590 died of that disease in London; the total deaths being 97,306, out of a population not exceeding half a million, so that every fifth person died! The old bills were merely enumerations of christenings and burials, not of births and deaths; and were made out from the application of parties for interment and baptism. A searcher, generally some elderly female, sworn to a diligent performance of her office, proceeded to the house where the deceased person lay, and ascertained his age, and the cause of his death. The bills were carefully made up in the middle of the last century, but after that many parishes began to fall off. The Company of Parish Clerks, in March 1819, made an effort to improve their bills; the lecturer held a draft of an Act of Parliament, to carry which the Company spent nearly £1000 without success. It was creditable to the Parish Clerks of London, that the bills never cost the country one farthing. In 1832, the cholera year, these bills again attracted much attention.

The machinery of the old bills was necessarily imperfect; many were buried out of London, and some in the grounds of Dissenters, unknown to the orthodox clerks, and thus escaped registration.

Since 1837, these bills had become good for nothing. The total number of deaths registered by them in 1838, was 18,266, being an average of only 350 weekly; this, we now know, was less than half of the real mortality, which averaged 754 weekly. In the palmy days of the old bills, they registered only 64 per cent. of the real mortality, 36 per cent. remaining unregistered. In 1838, the Parish Clerks registered 18,266 deaths, to which must be added, by the new Tables, 20,984, making a mortality in the old districts of 39,210. Allowing one-third for the new districts, which would amount to 13,488, the total mortality is brought up to 52,698.

Machinery of the New Tables.—England and Wales is divided into 25 grand registering divisions, of which the metropolis is 1, and Wales 25. The metropolis is divided into 32 superintending registrars' districts, and 125 registrars' districts. A weekly return is made up by each of the 125 registrars, and forwarded by post to the General Registry Office, at the same hour every Monday. This weekly Table contains all the deaths registered up to the close of the previous Saturday. On an average, four days elapse from the death to the registration; therefore the deaths registered in the week from Sunday March 15 to Saturday the 22nd, are, in fact, the deaths that occurred between Thursday March 12 and Wednesday March 18. The weekly Tables are sent in on Monday, made up on Tuesday, printed on Wednesday, and published on Thursday. Many of the metropolitan registrars are medical men. In all England and Wales there are 2193 registrars, and of these 527, nearly a third, are medical men; so that great accuracy with regard to the cause of death is ensured. The cause of death, moreover, in the great majority of cases, is certified by the attending medical practitioner, so that the system has now attained extreme perfection, and it is doubtful if a single death occurs which escapes registration. Dr. Gregory then gave a description of the weekly Tables published by the Registrar-General, several of which have appeared in THE LANCET. He thought it due to the British Association of Science to state, that the plan for the registration of diseases emanated from that body.

General Results.—Every thing conspires to show that there is a gradual diminution of mortality all over England. The value of human life is slowly but steadily on the increase. Not that there is any material change in the number of years allotted for man to live; for the human frame remains much the same as in the days of the Psalmist; but the average duration of life, or the number of years a child at birth may be expected to live, is on the increase. This principle is strikingly illustrated in the Tables of Mortality. Thus, in 1740 there died in London 30,811, while in 1832, which was the cholera year, there died in the same districts 28,606; and this too with an increase of population. The mortality in the middle of the last century, however, was very large, and is attributable to the great consumption of spirituous liquors, alike ruinous to the health and morals of the people. The new Tables afford the most faithful declaration of the number of deaths. In 1837, in the second half of the year, there were 24,959, making a yearly total in round numbers of 50,000. In 1838, the deaths were 52,698. Estimating the population at 1,850,000, this is 1 in 36 of the whole population, or 28 per 1000. This was a weekly average of 1013, 144 per day, 6 per hour, 1 every 10 minutes. So that if the great bell of St. Paul's was to toll ten minutes for each individual that dies, it would not cease tolling from the 1st of January to the 31st of December.

Mortality in London.—The average of 1838 was 1000 per week, and, large as this appears, it is probably a fair average. It corresponds accurately with Mr. Edmond's calculations, deduced from the parish registers, 1813—1830; also with Mr. Milne's estimate, 1801—1810. The mortality in the first 11 weeks, 1840, has fallen below the average; the deaths were nearly uniform, and averaged 900. The metropolis is now, and has been for ten or twelve weeks, very healthy. Mr. Fisher had informed the lecturer, that the police force had never been so healthy as since the commencement of the present year. In the middle of the last century the metropolitan mortality was estimated at 1 in 32 of the whole population, or 30 per 1000. The deaths in the whole of England and Wales are 1 in 45, or 22 per 1000. 1838 is made the standard year for comparison.

Mortality at different Ages.—The extraordinary mortality in the early years of life has been noticed in all ages. It is very striking in the metropolis, but even more so in other districts. Mr. Rickman, speaking of the mortality in early life in the manufacturing districts of England, where the population increases rapidly, the proportion of young persons being consequently very large, says that one-half of those born do not attain the age of 12 years; half of the males were dead at 7, half the females at 17, making an average of 12. Such is the effect of density, confined locality, and the habits of a manufacturing people, upon the infantile population. In the West-Riding of Yorkshire, a manufacturing district, half of those born are gone at 18. In the North-Riding, an agricultural district, whose population is more stationary, the half are not dead till 38. In London half the deaths occur before 21. Of 336,000 deaths in all England from July 1, 1837, to July 1, 1838, 71,888 were under 1 year, 27,908 at 1 year, 14,983 at 2 years. In London, two-fifths of the population do not reach their fifth year. The increase of the value of infantile life during the last 100 years would be observed by the following calculations. Deaths under 2 years, 1837-8, 99.796, being a proportion to the entire mortality of 295 to 1000. (In London it is only 290 in 1000.) In the 5 years 1733-7, the proportion of deaths under 2 years of age was 393 to 1000. In Manchester the deaths under 2 years of age were 375 per 1000. This exhibits an improvement of a most extraordinary kind in the rate of mortality in the course of 100 years, giving us reason to believe that a very great opening for improvement still exists in this department of medicine. The annual waste in the three great divisions of life is very interesting. It varies in different localities. According to the average of 1838, there were in London the following deaths:—

Under 16	1 in 25	466	46
15 to 60	1 „ 62	352	35
Above 60	1 „ 10	192	19
		1010	100

Out of every Company or Association containing 1000 persons in the middle period of life (15—60) that meets in London, 16 will be carried off before this day next year. The House of Commons, containing 658 members, may be expected to lose by death 13 members annually.

The Law of Climacteric Decay.—The healthiest period of man's life is from 7 to 12, weakly children having been weeded out. From seven to the age of 12 mortality diminishes. It is impossible to avoid observing, *en passant*, that beautiful provision of Nature, which has rendered period of education, the age of "the school-boy creeping like snail unwillingly to school." This most important period of human life, during which we buckle on the armour with which we are to fight our way through the world, the most free from interruptions. Gradually, from 12 to 24, mortality slowly but steadily augments. At 24 irregularities commence, and continue to the age of 84, a period of 60 years, when mortality again becomes

steady, and so continues to the utmost verge of existence.

The law of this irregularity constitutes a curious doctrine in statistics—the doctrine of climacteric decay, or the periods at which mortality is most prevalent, between the ages of 24 and 84.

The notion of climacteric periods has existed from a very early period. The Greeks expressed it by terms, signifying ladder, or step, or climbing the ladder of life. There is an ascending and a descending scale. It was always held that certain years were more fatal to life than others. The ancient notions of Pliny and Aulus Gellius were, that these years were multiples of 7 and 9—the ascending being 7, 14, 21; the descending, 49, 63, 81—the two latter being the grand climacteric. What foundation for these notions do we receive from statistics? 7 and 14 are quite correct; 21 was only conventional. 18 or 9 X 2 would be a better age for fixing the full development of the bodily and mental power, than 21. We escape out of the old prejudice only in the cases of our sovereigns, who are considered to be of age at 18, an Act of Parliament having been passed to make them so. The periods of 49, 63, and 81, receive no countenance from statistical investigations; on the contrary, all of them are very light years with respect to mortality.

There are, however, climacteric periods, but these are not multiples of 7 or 9, but of 10. The periodical augmentation in mortality is noticed first at 30, but 40, 50, and 80, also exemplify it.

Some change in the nature of the constitution takes place at these decennial periods, of which we know nothing, rendering a man more liable to acute and fatal diseases at that time than at intervening periods. In London the order is 40, 50, 60, 70, 30, 80. In other localities, 60, 70, 40, 30, 50, 80; and this is equally applicable to males and females. The years preceding and succeeding the decennial period are very light. Thus, in 1837, in all England and Wales the following was the number of deaths:—

29	2235	59	1932
30	2762	60	2394
31	1960	61	2113
39	1970	69	2247
40	2965	70	3348
41	1736	71	2361
49	1897		
50	2716		
51	1791		

A man at 59, therefore, has a worse life than a man at 61; and yet it is singular that the insurance offices acknowledge no such law, the rate of insurance increasing steadily with the year of life. This law of decennial augmentation of mortality was first noticed by Mr. Rickman in 1831.

Mortality of the Sexes.—The following are among the most striking results of the registration Tables, with reference to the comparative mortality of the sexes. In early life, the mortality among boys is much greater than in girls. In 1837-8, there died of males in all England under 1 year, 33,990; of females, 31,898; being a majority of 8092. This seems to have been foreseen by the Author of Nature, and the increased proportion of births in the male sex was made the compensating measure. The non-recurrent maladies affect the two sexes equally; so do typhus and many other acute and chronic disorders. In middle life the mortality among males is greater than among females, in the proportion of 520 to 493. Nevertheless, there are some few exceptions to this rule; consumptive affections are more frequent in females than males, in the proportion of 41 to 37; cancer, in the proportion of 2 to 1; dropsy, 8 to 7; hooping cough, 49 to 37. Violent deaths are, however, more frequent in males, in the proportion of 3 to 1. Affections of the heart are more frequently fatal in men, in the proportion of 26 to 19. Females attain a greater age. In 1837 there died, at above the age of seventy-seven years, 73 men to 111 females: Total annual mortality in London, 27 males to 25 females; all England, 75 males, 73 females. If the lecturer were to speculate on the cause of the superior longevity enjoyed by females, he should attribute the circumstance, not to any difference in their original conformation, for men were built probably of stronger materials, but to the healthier condition and temperament of the female mind, which, being better regulated than ours, rose superior to the cares and anxieties which shorten the days of men.

Mortality in Seasons.—The old Tables are valueless in this respect, and the new bills as yet afford no data on which we can rely. In the first half of 1838, in all England, there died 28,638, in the second half 24,060. In London, the order of the seasons in respect of salubrity is the following:—Autumn and summer, healthy; spring and winter, unhealthy. In Paris there is the least mortality in July, the greatest in April. In Italy the order is reversed; March is the healthiest, August the most unhealthy month. In all healthy localities the proportion of deaths is greatest in cold seasons.

Mortality in different Districts.—The rate of mortality is governed chiefly by density; but comparative poverty and affluence, the efficiency of ventilation, and the measures for the removal of impurities, contribute to the result. The most unhealthy district of the metropolis is the eastern; typhus and epidemic diseases rage in Whitechapel, Shoreditch, and Bethnal-green; St. Giles's

is the most unhealthy. The suburban districts are the most healthy, as Camberwell and Hackney. St. George's, Hanover-square, is the most healthy parish in London. Out of 1000 females living in Whitechapel 39 die annually. Of the same number in St. George's parish, only 17, which is less than half. The average of London is 25 per 1000. The new street contemplated to be made between St. Martin's-lane and Tottenham-court-road, and the removal of all old densely-crowded neighbourhoods, by the erection of new and wide streets, would add to the health of the various districts in which such improvements were necessary. It is impossible to estimate too highly the value of all those improvements which give a centrifugal direction to the population. In all sea-ports and manufacturing towns, the tendency is necessarily centripetal. Hence the greater salubrity of London as compared with many of our manufacturing towns.

Comparison with Rural Districts.—Deaths are always more numerous in cities than in rural districts. The five south-western counties of England have a population closely approximating the population of London (1,600,000). In 1831, the deaths in the metropolis were 24,959 to 15,220 in the rural districts. When we reflect what London is—its crowded and dense population, and the intemperate habits that prevail, the total want of air and exercise so essential to health, which too many are doomed to undergo, more especially those who gain their livelihood by their needle, from 9 in the morning till 11 at night, and, on some occasions, till 2 in the morning,—one might expect that London would be unhealthy. But it is not so. It is less healthy, truly, than the rural districts, but far healthier than many continental cities. The following circumstances tend to render London healthy: 1st. Its favourable locality; the gravelly soil on which a large portion of it is built, its gradual rise from the river to the summit of Hampstead Hill. There is no ague in London, nor was there in old times, to affect its mortality; but ague is not a fatal disease; even in the West Indies it is a mild disorder, killing only 1 out of 160 who are affected by it. 2nd. The admirable system of sewers and under-drainage. 3rd. The width of the principal streets. 4th. The abundant supply of water, sufficiently pure for all practical purposes. 5th. The cleanly habits of the people. 6th. The wealth of the people, which permits the poor to enjoy a more nutritious diet than can be had in Edinburgh, Dublin, and Glasgow.

Comparative Mortality of different Diseases.—A cursory observation of the Tables of mortality, old and new, will show that the complaints that carry off the great mass of the metropolitan population are very few, say 20 or 30; and a closer examination of them points out the three principal sources of disease and mortality in the metropolis to be—

1. Original delicacy of frame, or the structural and functional peculiarities impressed on the individual at birth, and transmitted from parent to offspring. To this head we refer convulsions, water in the head, affections of the lungs, and, above all, consumption. These diseases occur chiefly between birth and the age of 25.

2. The changes produced in the body by the mere influence of time. The human frame is fitted only for a certain duration. Changes take place which lead to apoplexy, palsy, asthma, dropsy, heart affections, and natural decay.

3. Specific poisons received into the body from without, and operating independently of original contamination or the influence of time, and attacking all habits and ages, as typhus fever, small-pox, measles, scarlet fever, hooping-cough, constituting the epidemic class. The weekly average of all these, enumerated in 1838, was 901, out of a total mortality of 1013. All complaints may be arranged under a fourth class, or the accidental sources of disease and mortality; the principal of these are child-birth, hydrophobia, accidents, intemperance, gout, rheumatism, and erysipelas. About nine-tenths of mankind in London are carried off by the three first classes, one-tenth by the latter section. Epidemic and pulmonic affections carry off together more than half of the population of London. In 1838, the weekly average of deaths from epidemics was 265, from pulmonic diseases 275, making 540, out of a total of 1013. Epidemic diseases vary greatly in their intensity and order of recurrence. In 1837, measles; 1838, typhus and small-pox; and in 1839, scarlet fever, were the prevalent epidemics.

Still-born Children are not registered in the new Tables. The old Tables gave an annual average of 900. To get an approximation to the truth, you must double this number for the additional districts, say 1800, which makes it about 1 in 38 of the births. It would be well if still-born children were registered, partly to ascertain if they are on the increase, and partly as grounds of comparison with other countries; partly, also, because the causes of still-birth are but little known, and nothing is more likely to throw light on them than careful statistical investigations.

Convulsions.—This is the great disorder by which the infantile population is carried off, but there has been a great diminution in

the numbers of late years. In the old Tables we find that in 1741 the deaths by convulsions were 8479, or one-fourth of the total mortality. In 1731, 7986; in 1797, 4944; in 1829, 2761. By the new Tables in 1837, 3434 died of convulsions, and in 1838, 3684; being one-fifteenth of the total mortality. This was less than in 1697, 140 years ago, although the metropolis has nearly tripled its numbers since then. This immense saving in infantile life is owing to better management. Nearly all the cases of convulsions occurred in children. In 1840, out of 321 cases, 6 only were in adults. The following shows the comparative mortality by convulsions in three centuries:—

1696	4480	1700	4631	1827	2645
1697	4944	1708	5902	1829	2761
1698	4480	1731	7986	1833	2440
1699	4513	1740	8479	1838	3684

Teething.—This is rather the cause of disease than the disease itself, and should be expunged from the list of disorders. It is, however, on the decrease. In 1695 there were registered 1302; in 1699, 2268. In the new Tables, 1837, 954; in 1838, 780; in 1840, same average.

Water in the Head.—Convulsions, the effects of teething, and hydrocephalus, are closely allied. This class of diseases is on the increase, as shown by Tables—

1696	10	1834	682		
1705	20	1835	700		
1739	155	1836	578		
1744	144	1837	1844	}	New Tables.
1753	64	1838	1768	}	
1758	40				

This disease in the old Tables was named curiously, as Head-mold shot, Horse-shoe head, &c.

Thoracic Affections of Early Life.—Inflammation of the lungs, hooping-cough, and croup, carry off a large portion of the infantile population; and it appears that this class of complaints has become much more common in proportion as the encephalic disorders of early life have diminished. The decrease of some disorders, and the increase of others pathologically allied to them, is a very curious and interesting subject of investigation. Statistics teach us how closely allied are the sources and the forms of disease by which the infantile population is often carried off: they warn us that time is often wasted in the too carefully distinguishing between the disorders of the head, chest, and stomach, which affect this period of life. It should be remembered that all these disorders have a common origin in the original delicacy of the young frame, and that very trifling circumstances serve mutually to convert the one into the other.

The thoracic affections seldom appear in the old Tables previous to 1700. In 1837 there fell victims to these diseases 3260 persons; and in 1838, 3692. Of those who have fallen victims to it in 1840, 383 are below 15, and 148 above 15, or nearly as 5 to 2.

It seems probable that thoracic complaints occur at a later period of life than the encephalic. When one avenue to death is closed, another is necessarily opened; hence we may see why vaccination increases the amount of deaths at periods of life subsequent to that at which small-pox used to carry off children. This has been denied, but it is strictly correct. Croup, though a very fatal, is not a very frequent malady. The total deaths by croup in London in 1827, were 124; 1829, 123; 1833, 151; 1837, 300; 1838, 364. Total in England and Wales, 1837-8, 3310.

Epidemic Diseases.—Small-pox.—It is surprising that this disease should not only be found among the disorders affecting the mass of the people, but occupying a prominent place. Vaccination was discovered in 1798, 42 years ago, and had been largely practised: the National Vaccine Establishment had been instituted 32 years, yet, in the first half of 1837, 763 died of small-pox, making an annual total of 1526. In 1838, when the disease was epidemic, the following was the mortality in the four quarters:—

	Mar. 31.	June 30.	Sept. 30.	Dec. 31.
Males	409	597	573	451
Females	344	548	488	407
	753	1145	1061	858

Making a total of 3817.

In 1840 the average deaths were 10 per week, making an annual total of 520; the disease is not now epidemic. Epidemic small-pox seldom lasts more than one year. A storm is succeeded by a calm. The law of epidemic recurrence is little understood. The variolous epidemics during the latter half of the last century were as follows:—

1763	3582	} Died in London.
1772	3992	
1781	3500	
1796	3549	

There was a remarkable absence of small-pox all over Europe, from 1797 to 1817. In the latter year it appeared in London, in 1818; Scotland, 1819; Norwich, 1824; Sweden, 1825; London, 1826; Marseilles, 1829-30; Germany, 1833; Ceylon, 1835; Copenhagen, 1838; London, 1839; North America (see the account of the dreadful ravages made by small-pox in North America in Captain Marryat's "Diary in America," 1839, vol. 2.)

The epidemic origin and diffusion of small-pox is too little considered: vacci-

nation was supposed to have banished it, but not so; this opinion arose from our ignorance of the laws of epidemic recurrence. There never had before been two decades without the presence of small-pox as an epidemic. Small-pox prevailed extensively in some parts of England in 1827; the total deaths in the second half of that year from the disease were 5811, which, being multiplied by 2, gave us the total of deaths 11,622. Now, small-pox proves fatal at the rate of 20 to 25 per cent.; therefore 11,622, multiplied by 5, would give the fact that nearly 60,000 persons had small-pox in England in 1837; in London, 7830 suffered from it. In London, in 1838, there were 3817 deaths by small-pox, making, by a multiple of 5, the great number of between 19 and 20,000 persons affected. This is extraordinary, considering that 25,000 children are annually vaccinated in London, gratis, and that no inoculation is practised.

Small-pox is chiefly a disease of infantile life. In 1837, out of 1056 deaths which occurred in the West of England and the metropolis, where it chiefly raged, 986 were under 10 years of age, 70 above 10. In 1840, out of 42 deaths in six weeks, 29 were under 15; 13 above 15.

The deaths by small-pox during the last century, 1701-1800, were just 200,000, or 2000 a-year. It has been wrongly asserted that the mortality was materially increased by the practice of inoculation—this is one of those fallacies which are received without inquiry.

	Deaths.
1701 to 1750..no inoculation..	97,546
1751 „ 1800..inoculation...	102,119

Being merely a difference in the half century of 4565, which is so small as hardly to merit notice; the increase in the population would more than explain it. The deaths from 1771 to 1800, a period of 30 years, when inoculation was extensively practised, fell short by 1145 of the deaths in the first 30 years of the century, 1701-30, when inoculation was, excepting as a matter of experiment, unknown.

Measles.—There were about 500 deaths from measles, annually, in the old bills. They have increased materially since the middle of the last century, as will be shown by the following Table:—

1748..10	1752..111	1808..1386
1749.106	1753..253	1810..1031
1750.321	1754.. 12	1816..1106
1751. 21	1755..423	1831.. 750

In 1837, (2nd half) 1954 X 2= 2708 epid.
In 1838, weekly average 11 572

Small-pox and measles very seldom coexist. In 1838 small-pox was epidemic; in1840, the weekly average is 16, making an annual totality of 832.

Scarlet Fever.—There have been remarkable variations in the extent and severity of scarlet fever at different periods. The old bills give us few details; as this was mixed up with other forms of fever.

In 1837, in the second half of the year, there were 418 deaths, making 836 for the year. In 1838 the weekly average was 29, making an annual total of 1524.

	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	
Males.....	105	130	197		315
Females....	102	142	211		322
	207	272	408		637

In 1839 the most severe epidemic scarlet fever ever known in London occurred. In one week, Dec. 1 to 7, there were 82 deaths; making an annual total of 4264, more than double 1838, and quadruple 1837.

In 1840, in the first three weeks there were 345 deaths by scarlet fever, 326 of which occurred in persons under 15 years of age. The weekly average was 43, making an annual total of 2236. Scarlet fever is, therefore, still very prevalent, and its violence falls almost wholly on the young.

Hooping Cough.—This disorder was first noticed by physicians in 1663. Through that century very few deaths by hooping-cough were recorded. The number increased steadily through the seventeenth century. Chin cough first appears in the bills of mortality for 1678; it is now greatly on the increase.

1837, 2132; 1838, 2080; 1840. 1248; estimated on a weekly average of 24.

It is a disease almost peculiar to infantile life. Of the 189 who have fallen victims to it in 1840, 4 only are above 15 years old.

The advance on hooping-cough is decidedly owing to the diminution of mortality in the other diseases of infantile life.

Hydrophobia.—Much and justly as this disease is dreaded, being the only one that has never been cured, the mortality by it is very small.

1837 (half year) there were 7, making a total of 15 yearly in London. In all England there were 32 deaths from it during the same year.

1838. There were 12 deaths in London, or 1 a month.

1840. None during the first 8 weeks.

In the last century, the deaths by hydrophobia never exceeded 2 in a year.

Cholera.—This disease now seldom shows itself. In 1837 there were 58 deaths by it in London; in 1838, only 20.

The three epidemics of this disease in London were in 1832-3-4.

In 1832, from Feb. 21 to Dec. 11, there occurred 3200 deaths, or 5000, including those in the new districts.

1833. June 25 to November 5, 1100; new districts, 1734.

1834. July 15 to Nov. 18, 630; new districts, 984; making a total in old districts of 4930; and, with the addition of the new districts, 7718.

TABLE I.—*Exhibiting the Ravages of Cholera in London during the Three Epidemics, 1832—33—34.*

Months, 1832.	Deaths.	Months, 1833.	Deaths.	Months, 1834.	Deaths.
February	25	—	—	—	—
March	250	—	—	—	—
April	273	—	—	—	—
May	52	—	—	—	—
June	67	June	1	—	—
July	1006	July	181	July	37
August	620	August	651	August	247
September	607	September	226	September	241
October	200	October	50	October	61
November	25	November	1	November	7
Omissions in former Months	75	Omissions	0	Omissions	37
Total	3200	Total	1110	Total	630

TABLE II.—*Showing the Ravages of Small-pox in the well-vaccinated Population of Copenhagen.*

Copenhagen.	Years.	Period.	Total attacked.	Total deaths.	After Vaccinat.	
					Total attacked.	Total died.
1st Epidemic	1824	Jan. 22, 1824, to Feb. 28, 1825.	412	40	257	3
2nd Do. ..	1826	Sept., 1825, to August, 1826.	623	39	438	2
3rd Do. ..	1829	March, 1828, to July, 1830.	562	28	457	4
4th Do. ..	1833	August, 1832, to Dec., 1834.	1045	45	898	10
5th Do. ..	1835	15th May to 31st December.	1197	106	1043	47
		Total	3839	258	3093	66

TABLE III.—*Exhibiting the Ravages by Consumption in London in the 17th, 18th, and 19th Centuries.*

17th Century.			18th Century.			19th Century.		
Years.	Total deaths.	Total by Con.	Years.	Total deaths.	Total by Con.	Years.	Total deaths.	Total by Con.
1657	12,434	2757	1705	22,097	2784	—	—	—
1682	20,691	3464	1710	21,060	2706	1829	23,524	5372
1687	21,460	3473	1720	25,454	3054	1833	26,577	4355
1692	20,874	3512	1730	26,761	3728	1834	21,679	3792
1695	19,047	3181	1740	30,811	4919	1835	21,415	3662
1696	18,638	3471	1745	21,296	4015	1836	18,229	3238
1697	20,970	3820	1750	23,727	5887	July to Dec. 1837	24,959	3877
1698	20,183	3583	1755	21,917	4322	July to Dec. 1838	26,349	3800
1699	20,795	3351	1758	17,576	3411	1840	142*	3692†

New Tables.

* Average weekly. † Ibid.

The mortality of cholera (*see* TABLE I.) fell almost exclusively on adults. In 1608 an epidemic appeared, and continued during the remainder of the century, which was called "Griping of the Guts," and destroyed 3000 annually. In 1669 there were 4385 deaths by this disease, which was, probably, a species of cholera. It ceased to appear in the Bills of Mortality, as a special disease, in 1733. The origin of it was doubtful, and it was not known whether it depended on soil, atmosphere, or animalcules.

Consumption.—The deaths by consumption in London are double those of any other disorder. It is the only disorder which retains now the same destructive character which it possessed in the earliest periods to which our statistical researches extend. In 1657, when there appeared the oldest bill extant, having the names of the diseases attached, out of a total mortality of 12,434, one-fifth of them, or 2757, were from consumption.

The proportion (*see* TABLE III.) varies between one-fifth and one-seventh, the average being one-sixth; the same proportions exist at the present time.

1837 (half-year), 3877 deaths were by consumption, out of a total mortality of 24,959.

1838. Weekly average is 142, being 7600 by consumption.

In 1840 the weekly average is 142, giving a total for the year of 7384.

There are 20 deaths daily in London from consumption.

In the second week of January the deaths were 166.

There is no perceptible difference between the deaths in the metropolis and other districts from this disease. In 1839, out of 4081 total deaths in Devonshire, 835 were from consumption, being nearly one-fifth. In Cornwall, out of 2440 deaths, 540 were from consumption, or one in four and a half. The object of statistics is not merely to satisfy idle curiosity, but to benefit mankind. Facts had pointed out the small benefit derived in consumption from removal to a western climate. As many cases originated in Jamaica as in England; 13 in the 1000 was the proportion of soldiers attacked by consumption in Jamaica, while it was only 6 per 1000 in England.

Black people coming to this country suffer excessively from consumption. Therefore, it is clear that the structure of the lung which is adapted for cold climates is unfavourable to hot ones, and *vice versâ*.

Consumption attacks all ages, but chiefly the adult and middle periods of life. The weekly average is under 15.26; adults, 108; aged, 9; making a total of 143. It appears from this Table, bearing in mind the numbers living at each respective period of life, that the mortality of consumption falls more evenly upon each of the three great groups into which we have divided the population, than is often supposed.

Typhus Fever is one of the great scourges of the metropolis, but is singularly variable in its intensity. From the earliest records of metropolitan mortality to the present time, typhus has been one of the chief diseases by which the population is thinned.

1837 (half-year), 1933 X 2 = 3866, it was then epidemic; 1838, 78 weekly, making a total of 4078; it was also epidemic this year; 1839, less than the half of 1838; and in 1840 the weekly average is only 26, making a yearly total of 1350; it is not now epidemic. It attacks equally all ages. In the second week of January, 1840, it proved fatal to 9 young, 9 adults, and 9 aged persons. Generally speaking, however, it attacks adults most frequently. The cause of discrepancy in the amount and severity of the disease is owing to the greater comparative comforts of the lower orders in London.

The amount of typhus is always proportioned to the necessitous condition of the poorer classes of society. In seasons of scarcity and commercial difficulty, when bread is dear, or the money to buy it is wanting, typhus prevails.

Child-birth.—The deaths from this cause, in the latter period of the 17th century, amounted to 150 annually, and in the early periods of the 18th century to 200. It was always singularly uniform in regard to its numbers:—In 1827, it was 272; 1829, 264; 1833, 275; 1835, 277. In 1837, under the new Tables, it was 390; 1838, 416; and the average of 1840 would be 312.

It had been calculated, in a previous part of the lecture, that there were 70,000 births annually in London; therefore an average of 400 deaths yearly, as evidenced by the results of the last three years' registration, gives only 1 death in 175 cases of childbirth, being 174 to 1 in favour of the mother. Throughout England and Wales, Mr. Farr considers that the proportion of fatal cases is still smaller, not exceeding 1 in 250 births.

Deaths by Violence form a very considerable item in the sources of metropolitan mortality; about 1-40th of the whole. The average of 1838 was 25 weekly, out of 1013, making a total of 1300 in the year!

Heart Affections.—These were not noticed in the old Bills of Mortality. They are now very frequent in all ranks of society, and constitute a notable proportion of the annual deaths. In all England, during the second half of 1837, 1596X 2=3192, fell a sacrifice to heart affections in a mortality of 150,000. In the metropolis, during the same period, 356X .2=712 deaths occurred from this

cause. In 1838, the weekly average of deaths from heart disease was 16, making a total annual mortality of 832. In 1840, the weekly average is 21, or 1085 yearly. These diseases occur to the young, the adult, and the aged; chiefly, however, among the adults. This increase is owing partly to the actual increase of the disease, and partly to its being better known and understood.

Apoplexy and Palsy begin to prevail soon after the 40th year of life, and continue a great source of mortality from that period to the age of 70. Next to natural decay, it is the most frequent form of disease by which the aged population is carried off. In 1837 (second half) there were 826 deaths by it, or 1652 in the year. In 1833, there were 1716 deaths from it; and in 1840, during the first eight weeks, there had been 153 deaths by it in persons over 60, and 121 in those below this age, making a total of 1781 in the year.

Decay of Nature chiefly occurs after 60, although the powers of life sometimes steal away between the ages of 40 and 60, constituting premature old age. In 1837 (first half) there were 1690 registered as dying of decay of nature, making a grand total of 3380. In 1838, the weekly average was 79, making a total of 4108. There is great diversity in the proportions of persons dying of old age in different parts of England. A few isolated cases of longevity prove nothing; but a large and steady proportion of deaths at above 70, is strong presumptive proof of healthy locality. In 1837, in all England and Wales, of 1000 deaths, 145 of the persons were above 70. In the North-Riding of Yorkshire, the proportion is 210 in the 1000. Contrast this with the mortality in persons above 70 in crowded populations—London (above 70), 104 per 1000; Birmingham, 81; Liverpool, 63.

In the course of his lecture, Dr. Gregory paid some well-deserved compliments to the Registrar-General for his enlightened demonstration of the Registration Act, and to Mr. Farr for his labours, and the assistance he had rendered him in the composition of his lecture, which he concluded by expressing a hope that he had thrown a degree of interest around the new system of registration, and demonstrated the great accuracy with which it was carried on.—(*Cheering.*)

[We are indebted to the kindness of Dr. Gregory for the last part of the foregoing lecture. Time only allowed him to give about half of it to his numerous auditory in the Royal Institution; he was good enough, however, to furnish us with such copious notes of the latter portion as have enabled us to complete the subject.—*Reporter, Lancet.*]

OPERATION FOR LARYNGITIS.—DISCOVERY, INSTEAD, OF AN AORTAL ANEURYSM.

To the Editor of THE LANCET.

SIR:—Should the following case (which came to my recollection when reading a paper by Mr. Cæsar Hawkins, "On the Diagnosis of Foreign Bodies in the Larynx," and the discussion which ensued at a meeting of the Royal Medical and Chirurgical Society, Feb. 11, 1840, published in THE LANCET,) be worth noticing, I shall feel obliged by your giving it a place in your valuable Journal. I am, Sir, your most obedient servant,

E. R.

Pontllanfraeth, March 26, 1840.

A robust man, from 35 to 40 years of age, was admitted into one of the medical wards of the Edinburgh Infirmary, in the early part of 1839, with symptoms of laryngitis, for which his throat was blistered, and other remedies were administered, without any alleviation of his sufferings. The difficulty of respiration becoming more urgent, tracheotomy was considered necessary, and Mr. Syme (who was, I believe, in the surgical hospital at the time) was requested to see the case immediately. He came, and lost no time before the operation was performed. I am sure that Mr. S., and those who were present, will not soon forget the countenance of the man at that moment. Terror and agony both combined gave to his features a most horrific appearance. His convulsive efforts rendered it very difficult for the operation to be performed, which gave no relief, for he died instantaneously.

On the following day the body was inspected. The larynx, with the trachea, nearly to its bifurcation, was removed and carefully examined, but, to the surprise of all present, there was no lesion to account for either the symptoms or the sudden death; but Mr. Fergusson, the respected and talented lecturer on surgery, on exploring the thorax, detected an aneurysm of the arch of the aorta.

The above case suggests to our minds many important considerations. What was the cause of the symptoms? Did the same cause produce the sudden death?

If the symptoms were produced by inflammation of the mucous membrane, or infiltration into the loose submucous cellular tissue, about the rima glottidis, which *might* have subsided after death, then the operation would have produced relief; therefore we are justified in considering the *cause* to have been either in the chest or the brain. (I am sorry to say that the brain was not examined.) If in the thorax, would the pressure of the aneurysm on the

pulmonary plexus, or the recurrent laryngeal nerve of the left side, tend to produce those symptoms? Aneurysms of a much greater extent have and do exist, without materially interfering with the respiratory functions, particularly of the larynx.

The features of the individual would lead one to suppose that there existed a diseased state of some portion of the brain. In opposition to any lesion, the interrupted circulation would interfere with the functions of that organ, thereby aggravating the character of the symptoms.

Would, as has been frequently suggested, the entrance of air into a wounded vein (as veins were wounded during the operation) *cause* the sudden death, independently of that cause which produced the symptoms? If so, I think the surgeon cannot be too careful in performing the operation.

When the respiratory functions are interrupted, the veins of the head and neck (as is well known) are very much distended. Tracheotomy is performed; the respiration is suddenly relieved; the turgid veins are as quickly evacuated. Simultaneously a rush of air *may* enter them, as they do not so readily adapt their calibre to the existing quantity of venous blood after a long distention.

It is my intention, at a future opportunity, to offer a few remarks on the physiology of the circulation and respiration, which will perhaps establish what has been just advanced.

ACCOUNT OF A PREPARATION OF

A HEART,

OBTAINED IN A FATAL CASE OF

MAL D'ESTOMAC.

By JAMES M'CABE, *M.D., Physician to the Cheltenham General Hospital.*

PATHOLOGY OF CACHEXIA.

IN a former report I mentioned a case occurring here, presenting all the external characters that distinguish the disease which has been called by the French "Mal d'Estomac," and, in a late nosological arrangement in this country, "Cachexia Africana." In the October Number of the "Medico-Chirurgical Review," for 1838, there is an able paper, by Dr. Fergusson, of Windsor, on the subject of tropical diseases, to which, when treating of "Mal d'Estomac," he appends the following note:—"My friend, Dr. M'Cabe, of Cheltenham, Surgeon of the Royal York Rangers at Trinidad, when I was there, greatly distinguished himself by his dissections and inquiries into this disease, and if he could now be induced to give them to the world, new and better light might be thrown on the subject." In compliance with so flattering a wish, from so excellent and respected a friend, I will here introduce the post-mortem examination of a very remarkable case, together with the pathological and practical reflections which the appearances at the time suggested:—

Copy of a Report accompanying a Morbid Preparation of the Heart. Transmitted by JAMES M'CABE, *M.D., through Dr. Fergusson, Inspector-General of Military Hospitals, to Sir James M'Grigor, Bart., Director-General of the Army Medical Department.*

"The preparation herewith transmitted is the heart of a man who died of a most marked form of that disease which has been called in this island (Trinidad), 'Mal d'Estomac,' but which may more properly be considered the effect of a complication of disorders inducing a cachectic habit and a broken constitution. A soldier at this station (St. Joseph's), after having had several attacks of fever, remittent and intermittent, and, perhaps, several attacks of dysentery, after each of which his constitution had been visibly impaired, becomes of a pale and sallow complexion; his feet and legs swell, particularly in the evenings; his stomach and bowels are frequently out of order; he has frequent palpitations, and walking up an ascent occasions a sense of suffocation. In the more advanced stages his stomach rejects food; the cellular membrane over the body is distended with fluid, and, being almost transparent, exposes to view a peculiar white adipose substance, deposited in the cells of the cellular membrane; the breathing at length becomes more difficult, and the least exertion occasions a sense of faintness; the face is bloated, and the eyes haggard and ghastly; the pulse small and unequal. These aggravated symptoms are not present until after a patient has suffered from several attacks of disease; but a certain approximation to this state is observable after each imperfect recovery, and the constitution appears, after each successive atack, to be rendered less capable of effecting its own cure.

"Intemperance may be considered to be one of the principal causes of this disease, or, rather, of this complication of diseases; and when this change has once taken place the unfortunate sufferer becomes more than ever infatuated with the love of ardent spirits. The uncomfortable feeling which he experiences in his stomach he imagines is relieved by the stimulus of spirits, and, as it probably affords some alleviation of his mental and bodily suffering, no remote consequences can deter him from indulging in the most dangerous excesses.

"The most remarkable circumstance that presents itself, with respect to this preparation, is its great want of muscularity, and the quantity of fat deposited about its base.

The ventricles, instead of being firm and muscular, yield on pressure, and their sides close together like a pouch, or membranous bag. This great want of muscularity is not now so evident in the preparation as it appeared in the subject at the time of dissection. It has now been preserved during several months in strong spirits, or what have been called by the planters, 'high wines.' The effect of the spirits has given the preparation some appearance of muscularity, of which, at the time of taking it out of the subject, it was entirely destitute.

"The following were the appearances on dissection of the subject to which this morbid preparation belonged. Surface of the body white; cellular membrane distended with fluid, and almost transparent; an incision, made with a scalpel along the inner side of the thigh, was followed by a copious discharge of a watery fluid; the cells of the cellular membrane filled with fat; a quantity of fluid between the dura and pia-mater; a preternatural quantity in the ventricles of the brain and base of the skull; the whole cavity of the thorax filled with water; the heart deprived of its muscularity; about an ounce of a yellow substance, of the consistence of jelly, in the right auricle; a quantity of dark-coloured coagulated blood in the same auricle; the liver indurated, and, when cut into, of the colour and consistence of new cheese.

"To deduce any consequences from this remarkable state of the heart, connected with cachectic disease, appears difficult. It may not, however, be uninteresting to consider some of the principal causes which are supposed to occasion this deranged state of the system, and to see how far they are capable of producing the morbid changes above-mentioned.

"The stimulus of spirits taken into the stomach occasions an increased action of the heart and arterial system, by which the blood is propelled into the extreme vessels, producing diaphoresis on the surface. A soldier at this station, while under the influence of excesses, frequently exposes himself to the damp and cold chills of the night. The difference of temperature between the day and night is very considerable at this post. A soldier, under the circumstances above-mentioned, who has been exposed during the day to a temperature of about eighty-six degrees, is particularly liable to be chilled by exposure to a damp atmosphere of about sixty-two, to which the thermometer generally sinks at night, and towards gun-fire (five o'clock) in the morning. The impression of this damp and cold air on the surface of the body, causes the blood to retire from the extreme vessels to the heart and other central organs. The blood driven on those organs causes a local reaction, and the watery parts of it being carried off by the exhalents, an inflammatory diathesis is occasioned. Is it not probable that this excessive action of the heart, occasioned and continued by the causes abovementioned, and directed on itself by the reaction on the surface, is the cause of the destruction or absorption of its own muscular structure?

"I have seen, in some subjects who had died of this disease, a layer of coagulable lymph, connecting the surface of the heart to the pericardium so firmly that it required a considerable degree of force to separate them. This circumstance would appear to afford a proof of the previous existence of inflammation of the heart; for, although this lymph might have been effused from the vessels of the pericardium, we can scarcely suppose the existence of inflammation of the pericardium, without its having extended to the organ it surrounds.

"By whatever process the muscularity of the heart is destroyed, the fact of its being so is proved by this preparation. The first impression produced by its appearance, on dissection, was surprise that a heart so destitute of muscularity could have given to the blood the impetus necessary to carry on the circulation. The heart, deprived of its muscular structure, is unable to propel the coloured part of the blood into the extreme vessels; the consequence is the remarkable transparency of the skin and cellular membrane in this disease. The languid circulation is probably the cause of the great deposition of fat which takes place in the cellular membrane over the whole surface of the body, and gives to the skin the white and flabby appearance.

"With regard to the gelatinous substance and coagulated blood found in the right auricle, I can only hazard a conjecture. From the languid action of the heart, in the last stages of the disease, it is probable that during its dilatation the auricle could not completely empty itself of the blood received from the cavæ, but that a certain portion remained in contact with its sides, which was afterwards increased by the accession of more, as the circulation became more languid; and that the gelatinous substance was formed by the decomposition of the stagnant blood, or by the natural heat of the heart occasioning decomposition."

The preparation described in the above report is probably now deposited in the Museum at Chatham.

ON THE PROOFS OF THE

PRESENCE OF FREE MURIATIC ACID

IN THE STOMACH DURING DIGESTION.

By ROBERT DUNDAS THOMSON, *M.D., Physician to the Blenheim-street Free Dispensary and Infirmary.*

THE object of a paper on this subject, read at the Birmingham Meeting of the British Association for the Advancement of Science, was to discuss the nature of the experiments from which the deduction had been drawn by Prout, Tiedemann, and Gmelin, that free muriatic acid exists in the stomach. The author had made varied experiments in order to ascertain whether any acid could be distilled over from the filtered fluid contents both of the human stomach and of the inferior animals; and although he has generally procured traces of acetic acid, he could never detect the slightest indication of the muriatic. This result is in consonance with that of Schultz, who denies that there is any acid in the stomach, save the lactic, and this he admits he has met with in a free state, almost constantly, in the course of a very extended experience. The method adopted by Prout and others to determine whether free muriatic acid was contained in the stomach was to filter the contents of that viscus, to take a certain weight of the fluid, and to precipitate it with nitrate of silver. An equal quantity was taken, evaporated, and ignited; the residue was then dissolved in distilled water, and the solution precipitated with nitrate of silver. The difference between the weights of chlorine in the two silver precipitates was taken as the indication of the total amount of free chlorine or muriatic acid contained in the stomach.

Now, according to Dr. Thomson, this experiment is liable to, at least, one objection, which renders problematical the conclusion, that an indication is thus obtained of the true amount of muriatic acid, if it is not altogether fallacious; for he has ascertained that common salt is decomposed to a considerable extent by various vegetable substances, when they are ignited in contact with each other; and hence the saline matters of the stomach may lose muriatic acid without there being any of this acid in a free state in the stomach.

It has been known for some time that when steam is passed slowly over common salt in a state of ignition, muriatic acid fumes are discharged. Again, when anhydrous sulphuric acid, that is, oil of vitriol deprived of its water, is brought in contact with common salt at a strong heat, part of the acid loses an atom of oxygen, and becomes sulphurous acid; the oxygen passes to the sodium, and forms soda; the chlorine is evolved along with the sulphurous acid fumes, and the remaining sulphuric acid which has not been decomposed, unites with the oxydised sodium or soda to form Glauber salt or sulphate of soda. Such, then, are two well-known decompositions.

But Dr. Thomson has ascertained, that if oxalic acid be heated in contact with common salt, muriatic acid fumes are discharged in abundance, even at a temperature much below ignition, and the residual salt is found to effervesce strongly in the dilute acids, showing that a portion of chloride of sodium has been converted into carbonate of soda.

Tartaric acid, he has found, when exposed to the same action, to afford a similar result.

With citric acid the same products are generated, and a black residue remains, which contains a considerable portion of carbonate of soda. Saliva appeared to produce some decomposition, and numerous other substances which were subjected to experiment afforded analogous results.

It is quite obvious, therefore, that if any of those bodies which produce such decompositions are present in the experiment of Prout and Gmelin, a portion of the common salt will be decomposed, and the quantity decomposed will depend on the proportion of the decomposing elements present. Hence, this method cannot be a test of the actual amount of free muriatic acid in the stomach, and may afford the free muriatic acid which former experimenters, who have employed it, have concluded to be given off.

There appears to be another source of error in this mode of determining the point; because nitrate of silver will undoubtedly throw down a portion of animal matter from the animal fluid with which it is mixed, and this precipitate will fall down along with the chloride of silver, and increase its quantity above what it ought to be.

Dr. Thomson concludes from these observations, that the subject requires further investigation, as it is one in which the most important function of the human economy is concerned, and one whose condition must enter as an element into by far the majority of diseases which assail mankind.

FURTHER OBJECTIONS TO THE FORCIBLE RESTRAINT OF LUNATICS.

To the Editor of THE LANCET.

SIR:—Dr. Corsellis's candid and able letter brings the question of Non-Restraint into a much smaller compass.

1. He admits, and an able correspondent of his admits, that restraint *can* be wholly dispensed with; so that the question is now

one merely of pecuniary cost and medical expediency.

2. He admits that the cases requiring restraint are very rare, so rare indeed that he had not, at the time of writing, a single male patient under restraint in his large establishment. Others, in the same way, feel justly proud of the extremely small number under restraint, and of its frequently entire absence. What a contrast with the frightful scenes which were exhibited but lately before the agitation of this question, when even idiots stood chained in rows against the walls! Will it not occur to an able and humane man, like Dr. Corsellis, that for the small per centage in which he may think restraint more convenient, some little inconvenience should be submitted to, in order to close the door against a system which is so open to the cruellest abuse? Will he not also see, that the extremely small per centage which he himself thinks it preferable to restrain, entirely sets aside the theoretic arguments of persons who have not tried the system, and who picture perpetual outrage by ruffian attendants, patients destroying each other, and a reign of terror?

3. Dr. Corsellis seems half conscious that he misunderstands my ambiguous expression about *exhaustion*. I meant, that patients not under restraint sooner exhausted their mental irritability, while patients under restraint were much longer in so doing, and also seriously exhausted their bodily powers.

4. My position, that the attendants should be good-tempered, powerful men, has been considered as recommending restraint through terror, and it has even been suggested, that a greater number of weak attendants would be less alarming. Practical men will not make such mistakes. A furious lunatic *cannot* be restrained by *terror*: it is an agent unknown to him. The powerful attendant does not ill-use him, nor does the lunatic expect it. The lunatic merely is conscious that he cannot execute his purposes; he does not often attempt to force the powerful attendant, he does not refrain through fear from trying to force his way through a stone wall; he is merely conscious that it is impracticable. If the walls be plaster, or the attendants weak, he may be tempted to struggle. Moreover, powerful men are more usually good-tempered, and more usually habituated to self-control, and less likely to give way to petty, waspish spite and peevish irritation.

5. I do not deny that surgical cases may require some restraint, but such is used even in common hospital practice, and cannot be considered as trenching on the great principle in issue.

6. As for lunatics asking to be restrained, I will say, that they should not be indulged in their whim, but trained to self-control. The perverted tastes and instincts of lunatics are notorious; I would almost say, that their instinct was often towards what would injure them.

7. As for a patient eating his fæces, such a case would only require occasional attention; and I am convinced, from experience, that the great majority of cases of patients brought to our asylums insensible to the calls of nature, or sinking into that state, has arisen from the restraint system, and especially from confining the fingers.

8. The warmest advocate for restraint will find the detestable straight-waistcoat, muffs, collars, fetters, &c., can be dispensed with. Long before the abolition of restraint at Lincoln, the only instruments were a belt, fastened by two light chains to steel handcuffs, and leathern straps (hobbles) round the ankles, attached to each other, so as to prevent kicking, and not prevent walking.

9. Where a patient requires the seclusion mentioned by Dr. Corsellis, a solitary chamber may be used, but such I have found very rarely necessary.

10. Some have angrily attacked the system from a petty jealousy that any improvement should be made on their own system, and consider every improvement a rebuke to their own former practice. On the other hand, I feel most highly honoured in a gentleman like Dr. Corsellis having noticed my endeavours, and having so candidly and fairly stated his sentiments; in a year or two he will find the cases supposed to require restraint so reduced under his humane management, that he will consider the rare exceptions not to be worth retaining, and will emancipate himself entirely from a mischievous and insidious principle.

11. Accidents will sometimes happen in a lunatic asylum, and attendants will occasionally be irritated into striking a patient (an offence which should *never* be forgiven); but such accidents will be found much more numerous where restraints are most numerous, and patients will be found most irritating and more easy to be abused when maddened by restraint, or reduced by it to a revolting condition disgusting to the attendants. The cases of ill-usage in asylums are invariably most frequently, and indeed almost wholly, confined to the latter class of patients. Coercion applied under Dr. Corsellis's own eye may differ materially from coercion applied during his absence.

12. Where an accident occurs under non-restraint, or where an attendant strikes a patient, there is no fair argument for restraint, unless it is shown that ordinary vigilance would not have prevented the accident, that restraint would have prevented it, and that the person would have been restrained under such a system mildly

conducted, nor unless it be shown that restraint would have prevented the patient from being struck, and also that such occurrences were carefully sought out under the restraint system, and disproved on fair, impartial evidence.

I have not yet met with such a case as Dr. Corsellis describes, of a powerful patient continuing a struggle to rise from bed, between two attendants, until entirely exhausted. If I met with such a case a different course would be pursued. I have the honour to be, Sir, your obedient and faithful servant,

ROBERT GARDINER HILL,
House-Surgeon.

Lunatic Asylum, Lincoln,
March 28, 1840.

INCONTINENCE OF URINE, DURING SLEEP, IN FEMALES.

To the Editor of THE LANCET.

SIR:—You will oblige me by inserting the accompanying case in your Journal. I have the honour to be, your obedient servant,

E. W. DUFFIN.

14, Langham-place, March 26, 1840.

The "habit of wetting the bed," usually contracted during infancy, occasionally continues beyond that period of life, and is sometimes very difficult to overcome. For the most part, as the young person approaches puberty, the shame that attaches to the practice alone effects a cure; but this is not always the case, and it then becomes an object of professional interference. In females, when the habit is so riveted as to resist the correcting influence of moral reproach and feminine delicacy of feeling, it is not only very difficult to remedy, but in sensitive minds may give rise to a state of mental depression of the most alarming description. An example of this kind presented itself to my notice a few months ago, the urgency of which suggested the mode of treatment to be presently explained.

The patient, a young woman in humble but respectable life, was 19 years of age, in perfect and robust health, regular, unusually good-looking, well made, fully developed in every respect, and extremely sensitive, so that the misfortune could only be regarded as the result of habit, and not of local debility, or disease of the urinary organs. She had an advantageous offer of marriage pending, but was prevented accepting the proposal in consequence of being unable to retain the contents of the bladder while asleep. Her mother and sister slept with her in turn, but their surveillance was of no avail, as latterly it appeared the girl did not void her urine while asleep at stated intervals, but as it was secreted, or as soon as a few ounces only were accumulated in the bladder. The habit had resisted every means, moral and medical, hitherto devised for its correction; and the young woman had for a length of time, in consequence, fallen into a state of despondency of the most distressing nature, and which had latterly, from the painful position in which she was placed with respect to her lover, increased to such a degree that her parents were apprehensive she might destroy herself. Being aware that the girl had been under medical treatment on various occasions, and that all the usual remedies had been fairly tried, it occurred to me, as the case was pressing, to establish a perpetual monitor at the orifice of the urethra. For this purpose I applied lunar caustic freely, to about an inch in extent, along the mucous lining of the urethral canal, so as to excite acute inflammation of the part. This had the desired effect. When the urine passed over the irritated surface the pain it produced was sufficient to awaken the patient, and arouse the sphincter vesicæ to the performance of its office. At first she slept but little, the scalding being very troublesome, from the urine almost constantly flowing; but in the course of a week the bladder admitted off a natural accumulation of urine, and the intervals between micturition were proportionably increased. A few weeks sufficed to completely correct the habit, though it was necessary to repeat the application of the caustic three times at intervals of fourteen or sixteen days, as the inflammation subsided. She has had no relapse during the last four months, and is to be married very shortly.

SIR ANTHONY CARLISLE, AND HIS NIGHT-WORKING COLLEAGUES.

To the Editor of THE LANCET.

SIR:—Sir Anthony Carlisle appears in "The Times," of March 31, as the advocate of the London College of Surgeons. I dare say you have seen his production, but lest, in the multiplicity of your avocations, it may have escaped your attention, I am induced to mention it, in the hope that you will expose to the readers of THE LANCET the special pleading with which it abounds. One part of his letter I know to be untrue, and I am much at a loss to conceive upon what authority he has made the statement: I mean that part in which he says that "the Colleges of Edinburgh and Dublin are both open to English candidates upon less expensive terms." Of the Edinburgh College I know nothing, but I know that the Dublin College charges for its letters

testimonial, to candidates who have not served an appreaticeship to a member, sixty guineas; and, with regard to the ordeal to which a candidate must submit before he can obtain a "qualification," the less comparison the London College institutes between it and the farces which Sir Anthony dignifies by the title of "THE NIGHTLY LABOURS of the Court of Examiners," the better for Sir Anthony and his colleagues. If, Sir, you had an opportunity of witnessing the numbers of young men who are annually vomited forth amongst us in Ireland by the *London* College, with its diploma in their possession, but *with scarcely a particle of surgical or medical knowledge* in their heads, you would marvel that any man could have the fool-hardiness to compare the College of Lincoln's-Inn-Fields with that of Stephen's Green.

There is another part of Sir Anthony's letter which I cannot bring myself to accredit. He says that out of 14,000 English surgeons there are only 600 amongst the discontented with the present state of things. If this be so, I can only say to the 13,000, PROH PUDOR! Trusting that I shall soon see Sir Anthony's production treated as it deserves in the columns of your Journal, I have the honour to be, Sir, your very obedient servant,

MICHAEL HEALEY, M.D.,
(ONE OF "THE 600.")

Ennis, Ireland, April 4, 1840.

TWINS, BORN IN DIFFERENT MONTHS.

To the Editor of THE LANCET.

SIR:—There is nothing in the *medical* history of this case to interest or instruct; and there is scarcely any deviation from the ordinary routine of twin cases. It is only remarkable for the periods which Nature selected for her efforts, twin-brothers being born on different days, in different months, in an instance of strictly "congruous twinning," the children being of an equal, or nearly an equal growth, and produced at a common birth. The mere accident of labour occurring on the *last* evening of the month, and of the clock striking twelve in the interval between the termination of the one struggle and the commencement of the other, constitutes the singularity of the events.

On the evening of March the 31st I was desired to attend, immediately, the wife of a trades-man, residing in Somers' Town. I found her in labour (not for the first time), and complaining sadly of the slowness of its progress, having been ill all the afternoon. With the customary and simple prescription of patience, and some warm tea, I retired for two hours, and on my return found the process greatly advanced. A child was born at a little after eleven o'clock, and the mother, who had suffered exceedingly, became faint and low for some short time. On partially recovering she complained of pain more fixed and violent, and more uninterruptedly so than is usual. On applying my hand to the abdomen I immediately discovered the limbs and movements of a second child. Although few appeared to be necessary, yet no efficient pains occurred for an hour, and it was nearly one o'clock when she was delivered of the second boy. The mother has been doing well; but MARCH and APRIL (for the nurse "christened" them immediately,) were not destined to remain united, in life at least. The first-born, March, is dead. The second-born, April, is by no means a strong or healthy child. I am, Sir, yours truly,

WILLIAM BRIDEN.

23, Great Coram-street, Russell-square, April 5, 1840.

MEDLEY PROFESSION.

To the Editor of THE LANCET.

SIR:—The following list of the different *divisions and grades* in the Medical profession may not be uninteresting to the readers of THE LANCET:—

1. Apoth. Comp Lond.	Licentiates	1
2. Coll. of Surgeons	Members	2
3. ——— Physicians	Licentiates	3
	Fellows	4
4. Univ. of London	M. B.	5
	M. D.	6
5. Abp. of Canterbury	Div. Doctors	7
6. Univ. of Oxford	M. B.	8
	M. D.	9
7. ——— Cambridge	M. B.	10
	M. D.	11
8. ——— Edinburgh	M. D.	12
9. ——— St. Andrew	M. D.	13
10. ——— Glasgow	M. D.	14
	C. M.	15
11. King's Coll., Aberdeen	M. D.	16
12. Marischal College, Do.	M. D.	17
13. Coll. of Phys., Edin.	Licentiates	18
	Fellows	19
14. ——— Surgeons	Licentiates	20
	Fellows	21
15. Fac. Phys. & Surg. Glas.	Diploma	22
16. Trinity Coll., Dublin.	M. B.	23
	M. D.	24
17. King & Queen's Coll. of Phys. Ireland.	Licentiates	25
	Fellows	26
18. Coll. Surg. Dublin	Licentiates	27
	*Members	28
19. Apothecaries' Hall	Licentiates	29

So that it appears from the above, that

* The only medical grade conferred by the Dublin College of Surgeons is that of Licentiate.—*Sub Ed. L.*

there are 19 different licensing bodies in the kingdom, granting at least 29 varieties of diplomas, besides other divisions, such as extra-licentiates, &c. How are the public, or how, even, the profession, to judge of the relative worth of the members of a body thus heterogeneously associated? Your obedient servant, A. B. C.

THE LANCET.

London, Saturday, April 11, 1840.

THE *Council of the College of Surgeons* have at last found, in one of its members, an unscrupulous champion. Sir ANTHONY CARLISLE has thrown down the gauntlet, and defied the members. The Council's own Knight, who has "lived long and variously in the world," and has studied all things, from the hyssop on the wall to the "oyster" in the deep, without growing a whit the wiser, has demanded a place for some polemical observations in a daily paper. The "men who turn the world upside down" are hotly pursuing, the knight says, the *established institutions* of English physicians, surgeons, and apothecaries, under the plea of centralising and equalising, or of uniting, the different classes of medical men. The knight quotes Scripture. He reviles Medical Reformers in the terms which the idolatrous Pagans applied to the early Christian Reformers. "Great is Diana of the Ephesians!" shouted the idolatrous priests of Asia Minor—"Great is the College Council of *Twenty-one!*" screams the treble-voiced Sir ANTHONY.

The valorous knight whom the *Twenty-one* have chosen, hugs himself, at the onset, with the assurance that his foes are neither numerous, nor formidable, nor "remarkably distinguished." "Out of 14,000 English "surgeons the number of discontented does "not amount to 600!" He does not state how the estimate has been formed, and it obviously rests upon no foundation. In this Session of Parliament *thirty-five* petitions have already been presented from different parts of the kingdom, from associations comprising great numbers of the most intelligent and respectable members of the Profession,—from students, general practitioners, surgeons, and physicians,—all unanimously condemning the irresponsible, self-elective Councils, and calling, with one voice, for a representative corporation, new or old. Will Sir ANTHONY take the trouble to calculate, and tell the public, the numbers that have petitioned Parliament in favour of the *Twenty-one*? Has a single member, excepting the *Twenty-one*, out of the 14,000, prayed for the continuance of the present corporations? Has a solitary voice been raised in their favour at any one of the public meetings of the Profession?

Sir ANTHONY proceeds to tell the "British Public" how the reckoning between the rulers of the London College of Surgeons and its members have stood for the last twenty-five years.

The following is his statement of the expenditure:—

"For the purchase and binding of books, and for the salaries of the officers of the library, to Midsummer, 1839	£15,844
"On account of the museum, including the salaries and wages of the officers and servants of that department, to Midsummer, 1839	47,030
"For the present building, including fixtures.....	41,803
Total.....	£104,677

"And whence came this 104,677? Not one shilling of it from the pockets of the members—not one shilling of it from the public taxes—but every shilling of it derived from the nightly labours of the Court of Examiners, appointed by charter to grant diplomas, the yearly accounts of which have been printed, for the satisfaction of all the members, in the annual lists."

The Council of *Twenty-one* take care that the 14,000 members shall have no means of checking the meagre, unsatisfactory "yearly accounts," printed in the yearly lists. Mr. BALFOUR has his answer ready. Wo to the wight who should dare to ask for the data and the vouchers of the statements in the annual lists! No one, consequently,

can positively tell whether the knight's statement of the expenditure has the slightest foundation in fact, or determine how much of the £104,677 has been devoted to the library, museum, and building, or how much has found its way quietly into the pockets of the *Twenty-one* and their friends.

Medical Reformers would be very glad to see an authentic return of the sums which have been received and expended by the Council of *Twenty-one*, during the last 25 years. The income of the College is rapidly increasing, according to Sir ANTHONY: the number of diplomas sold in 1837 was, he says, 303; while 675 diplomas were sold by the Examiners in 1839. Under these circumstances the receipts and expenditure of the College, in 1831, 1832, and 1833, might be considered, perhaps, as a near approximation to the annual average of the 25 years; and it happens that a return was procured for those three years by Mr. WARBURTON's Committee. The net receipts amounted to £35,370; the expenditure, according to their own balance sheet, was £24,146. At this rate the *Twenty-one* have levied on the members,—yes, on *the members*, mendacious champion,—in the 25 years, £294,755; or, after making an allowance for the smaller income of the earlier years, probably not less than *a quarter of a million sterling!* Calculating on the same data, they have expended, in the same period, little less than *two hundred thousand pounds sterling!* Sir ANTHONY attempts to account for £104,677, which the *Twenty-one* have expended, without consulting the members. What, we ask the knight, has become of the residue of the quarter of a million? If the £104,677 have been sunk on the museum, library, and building, what has become of the £145,000? Where is it? Whence has it flown? Has Langham-place no secrets to give up on that head? The Black Knight is discreetly silent. Even when he trembles with age and wine, the secret of the Council of *Twenty-one* drops not from his babbling tongue.

The Parliamentary Returns must be again referred to. £62,874 were expended upon the museum and library in 25 years. Now in the three years, 1831, 1832, and 1833, when the detailed accounts were extorted from the Council, what proportion did the expenses of the library and museum bear to other items of expenditure? The sum expended on the museum and library was £3641; the salaries of the Librarian and Conservators amounted to a sum, making together £7563; while the total net expenditure in the three years was £24,146! In the last year of the return, £337 were laid out on the library; the direct fees to the *Twenty-one* were stated at £3502; the *dinners* of Council, at £90 8s; the *dinners* of Examiners, at £39 1s; the expenses of *venison under Royal Warrants*, at £4 18s 8d; the "tea and coffee, courts, committees, and candidates, at £73 10s!"

"And whence came this £104,677?" exclaims the exulting Knight—"Not one "shilling of it from the pockets of the mem-"bers." The calm impudence of this unqualified assertion has rarely been surpassed, If the £104,677 did not come from the pockets of the members, from whose pockets did they come? From the pockets of the *Twenty-one?* "From the nightly labours of the Court of Exminers" forsooth? Why, the Examiners are paid for their services. The ten Examiners were paid £3050 5s, in 1833. This was the remuneration adjudged to them by the Council of *Twenty-one*. The fees paid by members in 1833 amounted to £10,230 10s. The £3050 5s disbursed the expenses of the Examiners. It was an adequate remuneration for their labours. The residual, £7180, was therefore a clear tax on the members.

Sir ANTHONY goes on to say, what has frequently been falsely said before, that "no "compulsory law or other obligation brings "candidates to this College." The diploma of the College of Surgeons is demanded as a preliminary qualification for the public services, and for offices of various kinds, so that the purchase of its diploma is, on every hand, rendered almost indispensable; then the right of granting diplomas was conferred

by the Government of the country. It is not private property; it is held as a public trust, ostensibly for the good of the profession, and for the good of the public. The medical corporations are like other corporations; and when it is proved that their principle is erroneous, and the charter of their foundation corrupt, they must, like other corporations, be reformed.

"The London College of Surgeons has not importuned the Legislature with frequent or frivolous schemes for obtaining even needful powers, because the members of it well knew that the multiplication of laws has a tendency to create new sources of oppression."

The Council of *Twenty-one*, it is true, have never dared to appear in the presence of the Legislature, excepting when they have been dragged there as culprits. The members do well know "that the multiplication of "laws has a tendency to create new sources "of oppression;" for the laws of the *Twenty-one* have never had any other object or result.

It is evident that under the present nefarious Charter the Council of *Twenty-one* levy a very large sum of money annually; that the money is public money; that it is properly the money of the members, and that it ought to be expended for their advantage. It is equally evident that the Council of *Twenty-one* have never made any distinct and satisfactory statement of the mode in which the money of the 14,000 members has been expended. The Balance Sheet which they publish is delusive, and would not be accepted by the poorest accountant in a house of business, as satisfactory. All the proceedings of the Council are secret. It becomes, then, a matter of importance to inquire whether any honest man—any man of honour—any man who has the slightest regard for his character, for his profession, or for the interests of the public—can continue a member of a secret council, which, under a charter obtained by intrigue, and propped by apostasy, expends other people's money irresponsibly, and does things in the dark, and in company, which *he* would shrink from as an individual acting under the public eye.

Why have the College accounts, and the proceedings of the Council, been concealed from the members? What do people conceal? Not good deeds. Evil deeds alone make them love darkness rather than light. The Council of *Twenty-one* dread publicity. What is the source of this dread? If their distribution of the College funds has been meritorious, why submit to see their names and their councils enshrouded with suspicion and infamy? The Municipal Corporations are no longer self-elective, and secret; they no longer job away the funds of the rate-payers. The corrupt, unreformed Medical Corporations stand gloriously alone; they are monstrous anomalies in the free institutions of England.

Why have the Medical Corporations been allowed to survive the less iniquitous Municipal Corporations? Simply because the members of the medical corporations have never until now united in energetically demanding their reform; and the *Twenty-one* have succeeded in persuading the Government and the Legislature, that all who did not publicly *express* their displeasure, were contented with the base and ignoble insignificance to which they had been condemned by the oligarchy. The time is come for all who wish to see the medical profession placed upon a satisfactory footing, to express their energetic opinions, in petitions to Parliament. Those who remain silent will be declared to be contented slaves by Sir ANTHONY who has dared to flatter himself, and the *Twenty-one*, that the discontented do not exceed 600. It is for the 14,000 to refute the calumny.

THE "Vaccination Extension Bill" was to have been brought forward for discussion in the House of Commons on Monday night last, but was, by mutual consent, again postponed, until Friday, the 10th instant. The result we shall not be able to give until next week.

WESTMINSTER MEDICAL SOCIETY.

Saturday, April 4, 1840.

Dr. Crowne, President.

The discussion this evening embraced a variety of subjects, which offered little for reporting.

Mr. Thorburn stated, in cases of obstinate constipation, that he had succeeded in relieving the bowels by alternate injections of hot and cold water into the rectum.

Mr. Chinnock had found the symptoms of hysterical tympanitis to be removed by injections made with the confection of rue.

Saturday, March 28, 1840.

VAGINAL CATARRH.

Dr. Bird related some cases of severe vaginal catarrh in young children, and inquired if members had lately seen any similar cases, because it appeared to him to be at present epidemic.

An animated discussion followed, having reference chiefly to the irrationality and danger of considering cases similar to those related as dependent upon the contraction of gonorrhœa, by which many an innocent man had been suspected, and some even had lost their lives.

Dr. Reid related

A CASE OF HYSTERICAL TYMPANITIS.

The subject of it was an unmarried woman, 24 years of age, who applied as an out patient, at the Infirmary of St. Giles and St. George, Bloomsbury, in the latter end of June, 1839.

She stated, that for three weeks previous she had lost the use of the right hand, but that it was then returning. She had had no catamenial discharge for three months; the abdomen was gradually increasing in size, the appetite bad; she was troubled occasionally with giddiness, acid eructations, sickness, and a feeling of tension about the throat. She declared there was no possibility of her being pregnant, and admitted that she had a miscarriage eight years since. There was an areola round the nipples, but not distinctly marked, and the follicles were not prominent. She was put under a course of alterative medicine, but, as her symptoms became more urgent, she was admitted as an in-patient at the latter end of July.

The swelling of the abdomen was now much increased. Below the umbilicus, and towards the right iliac region, there was a hard and somewhat defined tumour, which did not recede on pressure. She suffered from severe pain in the left side under the heart, extending round to the situation of the left kidney. The bowels were regular; tongue white, but moist; pulse quick, small, and irritable; the pain was always more severe at night; urine very turbid, and contained much lithic acid. Eight leeches, with fomentations, were applied to the part. Aperient mixture and alterative doses of the mercury, with chalk and powdered rhubarb, were administered; a quarter of a grain of acetate of morphia occasionally at night.

On August 26 the pain ceased: there was a slight show of catamenia; the abdomen was rather softer. This alteration, however, lasted only a very short time; the tumour gradually increased from the side to the centre of the abdomen; the bowels became much constipated, one slight motion only being passed on the 10th of September, although she had taken several active aperients. A discharge took place at this time, from the vagina, of a thick sanguineous matter, of a dark brownish red colour, attended with very great pain; the abdomen, for some hours after, was much reduced in size, but, on the following day, no difference could be perceived in it. Dr. Reid went into the country for a few days, and was much surprised, on his return, to hear that she was in a very critical state. Her pulse was very slow, and hardly perceptible; skin cold and clammy; features dark and sunken; in fact, she was in an apparently moribund state. Stimulants were administered freely, and in two days she recovered. The constipation, however, continued as obstinate as before, and this notwithstanding the frequent employment of injections and cathartics. She took three drops of croton oil for three or four successive days, but without effect. She now passed her urine with difficulty. She also complained of a sensation at the lower part of the abdomen, as if something had fallen down, and caused obstruction in the passages. The vagina and rectum were carefully examined, but nothing was discovered to account for the sensations. The uterus was rather larger than natural, but the rectum was not blocked up by fæces, as was proved by the introduction of the finger, and subsequently by that of a tube; the abdomen was now more tense than formerly, giving a sensation of fluctuation on the left side, but resonant on percussion at the upper part, especially towards the left groin.

Oct. 3. Constipation still continues, although almost every form of purgative has been administered; the abdomen is more swollen, there is now great pain on the right side; she is better when she eats little, food bringing on the pain; no sickness; sleeps tolerably well; has headach; pulse varies. She has had two more attacks of exhaustion, similar to the one already mentioned. There is a thick, yellow discharge from the vagina; the urine now passes freely, but, previous to the act of micturition, she suffers much pain. Instead of becoming emaciated, she evi-

dently gains flesh. The breasts are increased in size, the areola is more distinct, and the follicles prominent.

On the 17th of October, after three or four hours of severe suffering, having had an enema of cold water, an immense mass of fæces passed; some parts were indurated, and of great size. Nine hours afterwards she had another evacuation, but not to such an extent. She suffered severe pain in its passage. It is exactly a month since the bowels were last relieved; no difference in the size of the abdomen. On the 19th the bowels were moved three times. On the 27th there was a catamenial discharge in small quantities, but for a longer period than before; the abdomen not so tense; bowels daily open; no pain on pressure; has had a hysterical fit. In the commencement of November she suffered from another of the low nervous attacks, attended with severe exhaustion. The bowels were again constipated for five or six days; but, by the end of November, the abdomen was quite reduced in volume, and soft. By the middle of December she was sufficiently well to allow of her discharge.

Dr. Reid had related this case, not as presenting symptoms very remarkable in themselves, when the nature of the complaint was fully understood, but they were such as puzzled, at the time, not only himself, but also several medical friends of great experience, who saw the patient at various times. These symptoms, at first, simulated those of pregnancy; and where the conviction was arrived at that this state did not exist, the presence of an enlarged ovary was suspected. The discharge from the uterus evidently removed the extreme distention of the tumour for a time; but on carefully examining this organ manually, no great increase of size could be detected in it at any period. Some similar cases had occurred, in which the practitioners consulted were so far deceived in their diagnosis as to propose puncturing the tumour. Two instances of this kind were related in THE LANCET of the previous week. Dr. Bright had a similar case under his care: the patient had an unhealthy cicatrix on her abdomen, a surgeon and two assistants having performed an operation for the removal of a tumour; no morbid growth had existed. A similar operation had taken place lately on the continent, and, to the surprise of the medical men assembled on the occasion, no tumour could be found. The same unnecessary operation had also taken place at Edinburgh, not long since. It was on this account, principally, that he (Dr. Reid) had thought it worth while to narrate the case foregoing, that the recital of it might, perhaps, call attention more forcibly to the existence of such a condition of the abdomen resulting from hysteria alone.

MEDICAL SOCIETY OF LONDON.

Monday, March 23, 1840.

CHINESE SURGERY.

MR. LEY read a paper on the practice of surgery by the Chinese. It would appear that in fractures they use bandages, and splints made of bamboo, which answer the purpose of procuring union admirably. They have also some rude apparatus for reducing dislocations of the patella and of the spine. From the description of an operation celebrated by one of their poets, who lived in the twelfth century, it would appear that the Chinese were at that time acquainted with the operation for breaking up cataract. The instrument mentioned by the poet is compared to the acorn of a beard of corn, which could only apply, Mr. Ley conceives, to the cataract needle. It is said in the poem, "that the interne light of the eye checks the candle of heaven, and that the pearl contracts a misty haze. The ease of the operator is greatly admired, who with all possible ease and hilarity wields the needle in reducing the cataract, as he would in hewing down a house with a hatchet." The admirer declares that he had always thought that there was some peculiar good luck, or divine interposition, in the business. To this the operator replies by saying that it was done by method. This is followed by some reflections on the practice of men who look only on the outside, and cannot distinguish between a germ and its imitation, and though they can tell the difference between wheat and peas, and know that a husbandman can eradicate the weeds without injuring the corn, yet they never dream how a surgeon could distinguish a cataract from the eye itself, or remove one without injuring the other. It appears that the operator in introducing the needle was careful not to wound any of the blood-vessels, "lest the aerial principle which circulates with the blood should escape." The modern Chinese practitioners appear to have no idea of the operation described above.

Monday, March 30.

INJURIOUS EFFECTS OF IODINE.

MR. COLE read a paper on this subject: it was chiefly a detail of three cases, in which, he considered he was enabled to trace very injurious effects to the use of iodine.

ST. THOMAS'S HOSPITAL.

PULSATING ABDOMINAL TUMOUR.—SCIRRHUS PYLORUS.

BENJAMIN BRAGG, aged 39, a wool-porter, admitted on the 10th of March, 1840, under the care of Dr. Robert Williams. This man was married, and had three children; gene-

rally lived in London, and enjoyed perfectly good health till a year and a half ago. At that time he became the subject of dyspeptic symptoms, with considerable general debility, and pains in the loins. His appetite was irregular, but he never complained of pain after taking food, or any tenderness of the epigastrium, till seven or eight months since. He then began to suffer considerably from pain in the epigastrium and hypochondria, which extended to the loins, and occasionally continued till he vomited, after which he became easy for a time. Between three and four months before admission, he first perceived pulsation in the tumour, which has continued ever since, but with slight remissions.

March 12. Says he is never free from pain, and the pain is always aggravated within a few minutes after taking food of any description. He is remarkably pallid and sallow; pulse 100, feeble; gets very little rest at night, on account of the pain. On examining the abdomen, a tumour slightly movable was discovered in the lower part of the left hypochondric region, which had a very distinct pulsation, accompanied by a very slight bruit de soufflet; it was about the size of a small orange.

14. Pulsation of tumour still very evident; tolerably distinct bruit de soufflet, which became louder on making more firm pressure with the edge of the stethescope, but disappeared when the patient assumed the erect position. The pulsation was not of equal strength in every part of the tumour, being less evident on its sides than at its anterior part.

16. No bruit to be heard. Pulsation is equally strong in the erect and recumbent positions; more pain, and he is evidently sinking under the disease.

18. The tumour does not pulsate at all; slight bruit in the recumbent position. In a day or two the pulsation returned. The man gradually became weaker, and died on the 5th of April. The disease being regarded as incurable, simple palliative treatment was adopted.

On making a post-mortem examination, the tumour was found to be formed by a thickening of the pyloric extremity of the stomach, owing to the deposition of morbid matter in its coats. On dividing it, the cut surface was smooth and very hard. The opening in the duodenum was not greatly contracted. The mucous membrane was ulcerated. One of the glands in the lesser omentum was very much enlarged, and softened, and was closely connected with the enlarged pylorus. These together had formed the tumour, which laid just over the aorta, and received its pulsations. The liver, spleen, and pancreas were healthy.

Perhaps what is known of the diagnosis of solid tumours of the abdomen receiving and communicating the pulsations of an artery from aneurysm, may be given in the following Table:—

SOLID TUMOURS.

Generally movable.
Pulsation greatest immediately over the artery.
Bruit de soufflet disappears in the erect position.
Pulsation generally disappears in the erect position.

ANEURYSMS.

Immovable.
Pulsation diastolic.
Bruit de soufflet remains unaltered by position.
Pulsation remains unaltered by position.

More obviously remains to be done on this point, for these rules, though susceptible of general are not of universal applicatino. For instance, we may have aneurysm without bruit; and even the diastolic pulsation is not positive proof, for the impulse of an artery might be conveyed to a tumour containing fluid. We can readily conceive that had the enlarged gland, in this man's case, advanced to suppuration, it would have conveyed diastolic pulsation. There were other circumstances in the case of Bragg which weighed against the idea of an aneurysm, the principal of which was the extreme pallor, as this could scarcely be accounted for by a moderate-sized aneurysm of recent growth, the man never having lost blood.

FRACTURED RIBS.—RUPTURED DIAPHRAGM.—NO EXTERNAL BRUISE.

Last week a man was brought into the house, after having been run over by a waggon. He lived thirty-six hours, and on post-mortem examination almost all the ribs on the right side were found to be fractured. The right pleura was completely filled with blood, and the lung collapsed. Part of the right kidney was lying amidst this blood, having passed through a fissure in the fleshy part of the diaphragm on the right side. This fissure was about three inches in length, and appeared to have been caused by one of the broken ribs which projected through the pleura posteriorly. The tissues around the fissure were infiltrated with coagulated blood. The liver was uninjured, but its substance appeared paler than natural.

This case is important in a medico-legal point of view, as it shows what extensive mischief may be effected without injury to the integument. At a late trial in York it became a question whether a ruptured intestine could have been caused by the blow of the leg of a chair. The defence set up was that it could not, because the surgeon allowed that there was no bruise. The only case we have read of at all resembling

the one we have just related is given by Chaussier, and the frequency with which this has been quoted is a sufficient proof of its rarety. A wagon-wheel, the wagon being full of stones, passed over the thorax of a man, and was marked by the track of mud on the clothes. There was no unusual appearance on the exterior of the body, but the clavicle was found to be torn from the sternum, all the ribs on the left side fractured, the pericardium distended with blood, and a large rent in the left auricle. No ecchymosis under the skin, or around the fractures.

UNIVERSITY COLLEGE HOSPITAL.

CASES OF SIMPLE AND MALIGNANT TUMOUR OF THE LOWER JAW.

Ellen H., aged 19, was admitted Jan. 29, 1840, under the care of Mr. Liston. She is a country girl, and has always enjoyed good health. Is quite sane. She did not suffer from toothach previous to the commencement of her present disease. She had no decayed teeth on the right side of the lower jaw. Six years ago she perceived a trifling swelling of the gum, at the end of the jaw; there was a small abscess, and some discharge. The tumour has continued to increase up to the present time; there has always been some slight discharge into the mouth. As the tumour increased, the teeth were removed. She suffered a good deal of pain in the jaw before the tumour commenced; since that time, however, she has experienced little pain, except when she has caught cold. On admission, there is a tumour situated on the right side of the inferior maxilla, extending from the canine tooth to beyond the angle of the jaw. The tumour is the size of a man's fist. It is hard, and evidently of a fibrous character. Not painful on pressure. The glands of the neck not enlarged. Her general health is quite good. The three last molar teeth in the lower jaw have been extracted, and their situation is occupied by a red mass of the consistence of gum. Catamenia quite regular; bowels open. Mr. Liston considered the tumour to be a good specimen of the fibrous kind, and that therefore it could be removed with safety. He determined to operate.

Feb. 7. The operation was performed today. The patient being seated in a chair, Mr. Liston extracted the lateral incisor of the right side; with a strong, straight bistoury he made an incision, commencing a little above the angle of the jaw, continuing under it to opposite the lateral incisor, then turning upwards towards the mouth, terminating about an inch above the chin; the flap of integument was raised, and, keeping the blade of the knife towards the lower jaw, the muscles were separated at that part where the tooth had been extracted, until the fore-finger could be passed into the mouth. The jaw was then partly sawn through with Hey's saw, and the division completed by the cutting pliers. The jaw being then pulled outwards, the tissues in connexion with the tumour at its base were dissected off. The tumour was then firmly grasped, and, with the whole substance of the bone, depressed, for the purpose of getting at the articulation; in doing this the bone gave way, and the operator, not having sufficient leverage to depress the jaw well, experienced some little difficulty in separating the temporal muscle from its insertion. The incision had also been made very low, in order to avoid injuring the branches of the portio dura; this, also, increased the difficulty of dividing the upper attachments of the jaw. In a short time the temporal and masseter muscles were separated from the jaw; the articulation was partly opened, when, in more firmly depressing it, the bone again gave way, leaving the condyle still attached. By seizing this portion of bone with a sequestrum forceps, it was soon removed. The operation lasted eight or nine minutes, and was borne by the patient with great fortitude. The difficulties of the operation were much increased by the attenuation of the tables and brittleness of the bone, and its having been twice broken, together with the lowness of the incision, which, although it increases the difficulties of the operation, should always be imitated, since it prevents paralysis, in a great measure. On examining the tumour, it was found to extend as far as the canine tooth on the right side, apparently of a fibrous character in that situation. Near the angle the bone was much expanded, and extremely thinned; this expansion and thinness extended as far up as the condyle, where also the bone was much thinned, and filled with a brown, glairy fluid. Previous to the operation, it was not suspected that the tumour extended beyond the angle. This was therefore a case showing the necessity of extirpating the bone from its articulation, inasmuch as considerable disease may extend upwards without much altering the external appearance of the bone. Two harelip pins united the wound in the anterior of the chin, with twisted suture. Ligatures were placed on the facial, transverse facial, and two branches of the internal maxillary. The wound was filled with wet lint, and the patient placed in bed. Little blood was lost during the operation. Eight hours after the operation, reaction came on. The wound was united with three points of suture, and some strips of isinglass plaster.

8. She has passed a tolerably comfortable night, though complaining of some pain in the head; has slept several hours; not much fever; pulse 90, not very full. Wound appears to be uniting. The pins and two

sutures were removed. To have milk and water.

9. Much the same: going on well; wound entirely united; pulse 100; some little fever and thirst.

10. Passed rather a restless night; complains of pain in the head; feels very weak; cheek somewhat flushed; pulse 100; rather full skin; hot bowels, not open: to have an enema. This produced copious evacuation.

22. Has been going on well since last report. The wound is perfectly healed, and there is very little disfigurement of the face. There is some œdematous swelling on the side where the jaw was removed, but the wound inside and outside the face has completely closed. She suffers no pain; her health is good; she has, in fact, recovered, without the occurrence of a single bad symptom. She has for the last week been wearing an apparatus, to supply the deficiency arising from the removed bone.

March 2. She caught a slight cold a few days since, which was relieved by saline medicine.

10. Discharged cured. To return in three weeks, to have a new apparatus for the mouth.

Case 2.—John N., aged 51, was admitted March 24, under the care of Mr. Liston. He is a mechanic. Always enjoyed good health, until the occurrence of the present disease. Had suffered from the toothach, and almost all his teeth were rotten. Seventeen weeks ago he suffered great pain in the last molar but one, and this was followed by some swelling of the gum at the base of the last molar. The swelling increased rather inwards than outwards. From this a tumour commenced, which has continued to increase up to the present time.

He has had no discharge of any consequence from the tumour; he suffered pain in it at the commencement of the disease, but it is now free from pain.

On admission his general health was good. He had a tumour about the size of two fists, extending from above the angle of the lower jaw on the right side, to near the symphisis on the same side; proceeding upwards, and becoming moulded on the upper jaw, it extended into the mouth.

The tumour is soft and elastic, but not ulcerated on any part, neither is it liable to bleed; it is unaccompanied by discharge.

MALIGNANT TUMOUR OF THE LOWER JAW.

James S. was admitted March 26. He had been some years ago accustomed to smoke a short tobacco-pipe, more particularly on the left side of the mouth; this produced some ulceration of the lip, while increasing cancer was the result. He suffered from this for ten years, at the end of which time a portion of the lip was removed together with the disease. At this time, a year ago, there was a slight swelling underneath the chin, and this has gradually increased up to the present time.

On admission he had a large tumour situated under the centre of the chin, firm and hard, somewhat elastic towards its apex, and of the size of the fist. It had at the apex an ulcerated point, of the size of a sixpence, which bled occasionally when touched. The tumour is firmly adherent to the chin, and the bone seems somewhat enlarged. The skin over it is discoloured, reddened, and firmly adherent. The tumour is very painful at all times, more particularly at night, and when touched. Mr. Liston refused to operate on this case.

In some clinical remarks on the two latter cases, he observed that they afforded the opportunity of showing malignant cases of tumour of the lower jaw, and contrasted well with those cases which had been previously operated upon in the hospital. In the second case the tumour had grown exceedingly rapidly, having commenced only seventeen weeks ago. The skin covering it was firmly adherent to it, and ulcerated in several places. Within the mouth was a large fungous growth, which bled when it was touched; and from the history of the case it appeared that the disease commenced in the soft parts.

There could be no doubt that tumours of a much more doubtful nature might be removed from the lower than the upper jaw. In the upper jaw, if the tumour were at all "mali moris"—it might commence under, at an early period, extend into the sphenoidal or ethmoidal cells, and could not be extirpated with safety to the life of the patient. In the lower jaw, where the tumour was confined to the bone, it could be entirely removed, the bone being sawn through wide of the disease, and removed at the articulation. It was not the size of the tumour in the case under consideration, but its character, which determined him from operating. From the skin being so extensively involved in the disease, it would be hardly possible to remove the whole; at any rate, the operation would be such that the patient would probably sink under it, though the disease could be completely extirpated. It could not be expected that the patient would remain free from disease. Under these circumstances, any operation, the slightest, could not be justified.

In the second case, the disease was of a different nature. Its history showed it to be cancer of the lymphatic glands beneath the jaw. The man had originally a cancerous affection of the lip; this had been removed, the lip healed, the cicatrix was quite firm, and there appeared but little disease in the part; the affection, however, had exhibited itself in the lymphatic glands. This was by no means an uncommon occur-

rence. Patients affected with cancerous diseases had operations performed for their removal; the wound healed, the patients appeared quite well, and the cicatrix remained firm. This state might continue for two or three years, but during that time it would seem as though the seeds of the same disease were laying dormant in the lymphatic glands leading from the previously affected part; and, perhaps, after the lapse of some years, the patient would perish from the development of cancer in these glands. The glands had become affected in this case.

HOSPITAL BEAUJON.

FALL FROM A HEIGHT OF 30 FEET.—EXTENSIVE INJURY OF THE VERTEBRAL COLUMN.—APPLICATION OF THE TREPHINE.—DEATH.

On the evening of the 6th of March, 1840, was brought into the Wards of M. Langier, at the Hospital Beaujon, a man, aged 25, who, together with a fellow-workman, had fallen from a third story on his back.

At the morning visit, on the 7th, he gave the following account of his accident:—The plank on which he had been standing had given way, and, he, with his comrade, was precipitated from a height of 30 feet. During his fall he turned over once or twice, and struck against some projecting pieces of scaffolding, and finally fell on a heap of stones on his back. He became insensible; his comrade had fallen upon him, and had escaped with simply a severe sprain of one of his ankles.

The patient was laying on his back, with the usual symptoms of injury of the spinal marrow; total loss of sensibility and movement of the lower extremities, extending upwards as far as the umbilicus; retention of urine and fæces; pain along the spine; pulse full, rather quick; countenance anxious; pain in epigastric region, on breathing deeply; respiration rather quicker than natural; thirst, &c. On passing the finger along the spine, a depression, with slight sensation of crepitation, was felt, apparently, between the 7th and 8th dorsal vertebræ. The skin over the part and back generally showed no signs of contusion.

Venesection to 16 ounces; quietude; position on the back to be retained, and urine to be drawn off twice a day.

On the 11th, five days from the accident, the symptoms were in no degree alleviated. Loss of sensibility and motion; retention of urine and fæces, as before. The respiration still continued hurried, and the buttocks and heels were inflamed, and a slough had begun to form on the sacrum, although no passage of fæcal matter had taken place; the abdomen was soft and tender, and not distended with gases.

M. Langier determined to apply the trephine, and, by making an opening into the vertebral canal, to attempt to remove the pressure on the marrow, whether depending on depressed bone or effused fluid. From an external examination, it seemed impossible to ascertain the actual extent of the injury, or the immediate cause of the symptoms; but M. L. judged the operation advisable, as the "remedium anceps" in a case otherwise mortal.

Operation.—The patient being placed on the side, almost reclining on the face, an incision, from three to four inches, was made along the mesial line, opposite the depressed spot, and the dorsal muscles were cut through, and detached on each side from the spinous processes, which were thus completely exposed. The spinous process of the ninth dorsal vertebra was found to be broken off, and was easily dissected out, bringing with it a portion of the posterior arch: thus, a small aperture was made in the vertebral canal, but it was not judged sufficient; a small trephine was then placed on the base of the spinous process of the vertebra below, or the eighth, and a circular portion of bone removed; an opening, large enough to admit the fore finger, was thus formed, and the medulla, covered by its theca, exposed, which, as far as could be ascertained, appeared uninjured. No depressed portion of the bone could be felt, but some blood escaped from the canal. It being evident that nothing further could be done, the wound was simply dressed with a piece of linen, smeared with cerate, and the patient was again laid on his back, so as to facilitate the escape of fluids, if any such existed in the canal.

The operation, which, according to some authors, is extremely painful and difficult, was easily and rapidly performed; the sufferings appeared slight, and little blood was lost, no vessel requiring ligature.

12. At the morning visit, we found the patient laying on his right side; he told us that, about two hours after the operation, his respiration had become more free, and the pain caused by inspiration less; but that, in the middle of the day, he had been seized with a severe convulsive attack of coughing, which had lasted all night; towards the evening this had become so distressing, with pain running round the chest to the wound, that mustard poultices were applied to the legs, and had produced some relief; their presence had excited a sensation of warmth in the legs, but no smarting or pricking was felt; also, towards evening, the introduction of the catheter having been neglected, the pain and weight in the pubic region, from distention of the bladder, with desire to void the urine, had been felt, but the subsequent introduction of the catheter

had excited no sensation; he had had some disturbed sleep during the night. This morning his state is—face flushed; skin hot, but moist; tongue dry, furred, with redness at the tip; pulse rapid, 128 pulsations, depressible; no rigors; respiration somewhat easier and freer; abdomen slightly inflated; no passage of fæcal matter, but of wind expelled with force; urine high-coloured, but neither turbid nor ammoniacal.

On first inquiry into the state of sensibility in the lower extremities, some amelioration was thought to have taken place, but, after repeated and careful investigation, this turned out to be merely the effect of over-anxiety on the part of the patient, who deceived himself into the belief that he had recovered somewhat the sensibility of the parts: power of motion null, as before; the extremities were warm, and a slight degree of redness had been produced by the mustard poultices.

Fifteen leeches to the back, in the neighbourhood of the wound; to drink freely, and some broth to be given.

13. We found the patient this morning in a great state of excitement; face turgid; hurried respiration; quick, small, wiry pulse, 130 pulsations; great thirst; pupils dilated; skin hot, dry; voice low, but distinct: the account given was, that he had again been attacked with a severe fit of coughing, which continued through the night, and was attended with sharp dragging pains over the chest, radiating from the wound; he had also experienced a sharp attack of rigors, with vomiting and headach; some fæcal matter had passed involuntarily, and a second attack of rigors, which came on in the evening, he attributed to exposure whilst the nurses were cleaning him; just before the visit this morning he had another involuntary discharge of dark-coloured, fœtid fæces; the buttock was not only inflamed, but a slough had formed; the wound looked well; considerable quantities of sero-sanguinolent fluid had escaped from it.

14. General appearance and symptoms much worse; respiration more hurried and oppressed, diaphragmatical; 130 to 140 pulsations; had a severe attack of rigors yesterday, and another this morning; has been delirious and agitated during the night, tossing his arms about; has a severe hacking cough, with a kind of hiccup, or convulsive action of diaphragm, with little sound; belly soft; the meteorism, described by authors as a constant symptom, does not exist, nor is the urine ammoniacal.

These symptoms increased during this and the following day, on which he died, at nine in the evening, five days from the operation.

Post-mortem Appearances.

Fracture, without displacement, but comminuted, of the posterior arches of four dorsal vertebræ, from the sixth to the ninth inclusive; or, rather, a double fracture running on each side, at the junction of the articular processes with the roots of the spinous, which were thus completely separated. The spinous process of the seventh, as before mentioned, had been removed in the operation. The perforation, made by the trephine in the base of the eighth, occupied exactly the space between the oblique processes, but in no way interested their articulations. No depression of the posterior arches existed. On laying bare the medulla, with its theca, considerable quantities of dark, coagulated blood, mixed with pus, was found laying on the latter, between it and the posterior arch of the canal, extending for an inch or more above and below the perforated spot. The vessels of the theca were gorged with blood. The medulla was found completely disorganised, transformed into a creamy substance to a considerable extent above and below; and opposite the eighth dorsal vertebra its continuity was completely destroyed. Vessels of the medulla also gorged, but no extravasation of blood between it and its theca. The body of the eighth dorsal vertebra was broken into fragments, some projecting into the canal and compressing the marrow. The body of the seventh was also fractured longitudinally, simply a fissure without displacement; the intermediate cartilage had nearly disappeared. The ninth rib on the left side was also fractured, at the distance of an inch from its articulation with the spine. There was no wound of the pleura, but the pleural sac of the same side was found inflamed, with considerable sero-sanguinolent effusion, and the left lung inflamed and hepatised.

ANOTHER CASE OF POISONING BY "UNIVERSAL" PILLS.

On Saturday, the 4th instant, an inquest was held before Mr. Gell, coroner for the city of Westminster, and his deputy, Mr. Higgs, at the Rising Sun, Castle-street, Long-acre, on the body of James Millars, a single man, aged 26, a cook and confectioner, residing at No. 9, Charles-street, Long-acre, who died on Wednesday, the 1st instant, from the effects of continuous and violent purgings, produced by taking pills which the maker had pirated from the Quack Morison.

Mr. T. Millars, deceased's father, deposed his son had been affected at intervals during the last fifteen or sixteen years with a very serious complaint, which he supposed to have been rheumatics or rheumatic gout. He was within the last fortnight attended by a medical gentleman, viz., Mr. Coates of

Museum-street, Bloomsbury. Either Mr. Coates, or his partner, Mr. Hodgson, saw his son daily until the 31st ult. and he regularly took the medicines prescribed by them. On Tuesday, the 31st instant, he obtained a parish order, and Mr. Lennard, one of the Union surgeons, attended his son on that day, but he died on the day following. Before his son had been attended by Mr. Coates, he had been in the habit of taking large quantities of Universal pills, from 10 to 22 at a dose, and he repeated the dose night and morning. The pills were labelled Nos. 1 and 2, and he took them indiscriminately, sometimes 22 of No. 1 in the morning, and 22 of No. 2 in the evening, and *vice versâ*. Cannot say whether he consulted any person about taking those pills, or whether he took them of his own accord; never saw him attended by any of Mr. Morison's agents, recollects, however, his telling him once that he had some conversation relative to the pills with an agent of Morison, and understood that the name of that agent was Salmon, and that he lived in Farringdon-street; did not understand his son to say that Salmon recommended him to take the pills. He ceased taking the pills after Mr. Coates was called in.

In reply to Mr. GELL.—During the latter time that he took the pills, deceased was constantly and most violently purged; attended him from the 22nd March to the 1st April, when he died, and should say that on an average, during that time, he had twelve motions every six or seven hours. After Mr. Coates was called in, the motions did not cease. They continued, but less violently, until deceased died.

Mr. LENNARD.—The nurse told me that between the time I saw him and the time he had taken a warm-bath ordered for him, he had had twenty motions.

Mr. GELL.—Was he attacked with vomiting?

Mr. LENNARD.—Whilst I attended him he was about six times, and threw up a dark-coloured liquid.

Mr. E. MILLARS, brother of deceased, examined.—My brother has been ill for the last sixteen years of general debility of constitution. For the last three weeks he has been seriously ill. I know of my own knowledge that he took "Universal" pills, but I cannot say for how long a period. I never went with him to Mr. Salmon's; but about three weeks ago my brother told me he had been to see Mr. Salmon, who was backward in giving him advice, and did not appear so willing as he used to be to converse upon the subject. As far as my knowledge goes, Mr. Salmon never advised my brother to take the pills. My brother always spoke in the highest terms of praise of Morison's pills, and after taking them he used to say that he found himself better. He told me that whilst he was once in the country he had recovered by this, and from two or three serious attacks. My opinion is that my brother died from over-exertion and feebleness of constitution, and not at all from having taken Morison's pills.

Mr. BAINBRIDGE, parish-surgeon of St. Martin's-in-the-Fields.—Did your brother express the same opinion relative to Morison's pills at the time of his death that he did formerly?

Witness.—He expressed himself satisfied with the theory of the medical treatment.

Mr. BAINBRIDGE.—That answer is too vague. Did he not say, just previously to his death, that he had gone too far with Morison's pills?

Witness.—I recollect he said that he thought he had gone far enough with them; by which I suppose he meant that he wanted to try some other remedies.

Mr. JAMES LENNARD, surgeon, examined.—On Tuesday, the 31st ultimo, I found the deceased in a state of great exhaustion, with his features much emaciated, and exceedingly pale. There was a bright spot of red on each cheek. His pulse was feeble, and he showed every symptom of great depletion. I was informed that he had been labouring under rheumatic fever, and that for some time past his bowels had been violently purged. On inspecting the surface of his body I found on the arms, belly, hips, legs, and back, large, dark-coloured blotches, and upon the right side several recent leech-bites. I considered from the first the case a hopeless one; but I ordered medicine to check the looseness of the bowels, which had a partial effect in doing so. I also called on my colleague, Mr. Bainbridge, requesting him to accompany me to see deceased in the evening. When the father came for the medicine I had ordered I asked him whether his son had not been taking some powerful purgative medicine, to which he answered that he had been taking Universal pills, but not for a week previously. Mr. Bainbridge went with me in the evening to see the patient, and he also considered the case hopeless. Next morning we called to see him, and found him dead. A *post mortem* examination of the body took place this morning, performed by myself, Mr. Bainbridge, and assistants. We found the body considerably emaciated. In the chest there were very extensive old adhesions of the *pleuræ*, and the *pericardium* adhered throughout to the surfaces of the heart, with other marks of disease. On examining the abdomen he found the liver slightly enlarged, but otherwise healthy. The stomach was much distended, with a large quantity of very dark-coloured semi-fluid matter. On opening, the pyloric extremity was found inflamed; the large veins were unusually turgid, and the villous coat was almost

black in some parts, and easily separable. The upper portion of the *duodenum* was much inflamed. The *ileum* was healthy, with a very slight exception, near its connection with the *colon*, where it was slightly inflamed. The first portion of the colon was healthy in appearance, but as it approached the sigmoid flexure the intestines became much inflamed. The rectum was highly inflamed; the bladder did not seem at all affected. My opinion is that death was caused by some drastic and acrid matter taken into the stomach, as all the other viscera had no appearance of disease that would interfere materially with the functions of life.

In answer to a Juror.—I certainly cannot say that deceased died of rheumatic fever.

Mr. GELL.—Is it your opinion that the taking into the stomach of Morison's pills would produce the internal appearances, and the effects mentioned by you which led to death?

Witness.—Decidedly it is.

Mr. GELL.—Do you know what the active principle of those pills is?

Witness.—Gamboge and aloes. Any other drastic purgative would have produced the same effects as Morison's pills.

Mr. BAINBRIDGE confirmed the evidence of Mr. Lennard, and gave it as his opinion, that the man died from extreme exhaustion, arising from excessive purging, caused by some drastic purgative that had been taken into the stomach.

Mr. HIGGS, on addressing the jury, said he was sorry that the evidence did not fully prove who sold, or who recommended, the taking of the pills; if it had, the verdict of the jury would be manslaughter against that individual.

The jury immediately returned the following verdict, "That deceased died from having taken Morison's pills."

One of the jury said, that he had been in the habit of "cooking" Morison's pills for deceased—viz., stewing them in water until they became of liquid consistency, so as to enable him to swallow 22 at a draught.

*** Morison has sent us a placard, saying that the pills were *Salmon's*, not *his*. Morison perhaps regrets that the rival's pills killed the man instead of "Morison's" poison. Morison derives no profit from such a victim.

USE OF THE HANDS TO ARREST FLOODING.

To the Editor of THE LANCET.

SIR:—If the following be worthy of a place in THE LANCET, you will oblige me by its insertion, for I consider it to be obligatory on every practitioner to make known to the profession any plan that has been adopted by him in practice, which, after sufficient trial, has proved to be effectual.

Flooding after labour is, perhaps, more alarming, even to the most practised and hardy veteran, than any other event that he meets with; but to the young accoucheur it is doubly alarming, an unsuccessful result not seldom marring for ever his professional prospects. In these cases I place my patient horizontally on her back, with her legs a little separated, having a large vessel, nearly filled with cold water, placed at each side of me. I immerse my hands in it, and move them about, until they become sufficiently cold; then, with one, I grasp the uterus, and continue to hold it until the hand begins to get warm. I then use the other in the same way. The first hand having been again placed in the water, it is soon cooled, and, in its turn, is applied as soon as the other is warmed; thus alternately applying them, I keep up a constant application of cold and pressure, which last can, unquestionably, in these cases, be rendered more effectual by the hand than by any other means. This is, of course, continued until the uterus is perfectly and permanently contracted. In the course of several years' practice, during which I have had, certainly, not a small share of midwifery, I have necessarily had many cases of flooding, not one of which has terminated fatally, a result which I attribute to having early adopted the plan described, which may have been, and, most probably, has been, had recourse to by others, though I am not aware of any lecturer or writer who has given it publicity. I am, Sir, your obedient, humble servant,

CHARLES LASHMAR, M.D.

Croydon, April 1, 1840.

CURE OF CLUB-FOOT FROM PARALYSIS, BY DIVISION.

To the Editor of THE LANCET.

SIR:—The following case of successful treatment of club-foot, of ten years' standing, arising from paralysis, may be worth recording, as adding one to the record of useless limbs restored to their functions by the treatment so ably and practically described by Dr. Little, to whom the profession and the public are much indebted. I am, Sir, your obedient servant,

JAMES COLES PARKER.

East Over, Bridgewater,
March 27, 1840.

Benjamin Glandfield, aged 11 years, was a healthy, strong child, until the age of ten months, when he suffered much from teething, and had a paralytic attack of the right leg. According to the parents' description, ineffectual means appear to have been used

at the time to remedy it, the heel gradually contracting to the following state, which it presented when first shown to me:—The heel is raised rather more than four inches from the ground, when the foot is at rest; the toes are turned out; and he walks, and rests all the weight of the body whilst walking, on the anterior extremity of the metatarsal bone of the great toe, over which the integuments are much thickened. The deformity in appearance, and the difficulty in walking, are very great, the body shaking about to maintain its balance in a manner that is painful to behold. When the foot is pressed firmly upwards, the chief points of resistance are the tendo-Achillis behind, and the astragalus in front, where considerable pain is complained of. The tibia is about half an inch shorter than the opposite. The muscles of the leg are small, and much wasted. *No voluntary power* can be exercised over them.

Feb. 6, 1840.—Having directed my assistant, Mr. D. Perkins, to press the foot firmly upward (to make tense the tendo-Achillis), with a very small, narrow-edged knife I divided it, at about an inch above the inner ankle. One small puncture only was made, and but a few drops of blood followed the operation. The complete division of the tendon was accompanied by an audible snap, and cessation of all resistance to its extension. The foot was laid in a splint, in its deformed position.

9. The puncture is healed, and firmly cicatrised. Applied an extending apparatus, formed by attaching a male and female screw to the foot-piece, moving on a hinge of the improved fracture apparatus. To this the foot and leg were buckled, and it was found to answer extremely well. Gradual extension was made.

12. The heel is lowered two inches. Little or no pain is felt, excepting when the foot is pressed towards its proper position; then it continues for but a short time. The two points complained of are at the astragalus, in front, to where the tendon was divided, behind.

15. The heel 1¼ inches from the ground.

18. The heel is one inch from the ground; there is great disposition to its turning in. The ligaments of the joint are much relaxed. A bandage was applied, firmly, to the foot and ankles, and the iron shoe, as recommended by Dr. Little, is worn, with an elastic spring, to counteract the inward tendency of the heel.

30. The heel is now perfectly level with the ground. He has been walking about this week past in a common-laced boot, stiffened on each side by a thin, steel, stay-busk. Ordered to use the foot daily, to employ frequent friction on the muscles of the leg, with a stimulating liniment.

March 26. The patient is going on most favourably. He is enabled to walk half a mile to his school, the heel resting on the ground at each step; his pain and limping in walking are gradually subsiding; he is enabled to flex his foot, and slightly to extend his toes; the deformed appearance of the foot is removed, and he has restored to him a useful limb.

Remarks.—The great advantages of the operation, even in this unfavourable case,—one of ten years' standing, with paralysis as its cause,—is so evident as to need but little comment. The chief point in its management, subsequently to the operation, was, by so adjusting the apparatus every night and morning as to avoid the effects of too much pressure, and, at the same time, to keep up sufficient permanent extension to restore the bones gradually to their proper position. The elastic spring, added to the iron shoe, was especially useful in counteracting the tendency of the heel to turn in, and this apparatus appears to be better adapted to cure most cases of talipes than the ordinary apparatus, being more convenient in size, and enabling the patient to place the heel gradually on the ground.

SEPARATION OF THE PLACENTA, CAUSED BY A FALL.

To the Editor of THE LANCET.

SIR:—If the following case, as being one of a class at all times attended with danger to the life of both mother and child, and therefore deeply interesting to the accoucheur, should be deemed worthy a corner in your valuable Journal, have the kindness to insert it. My reason for desiring its publication, is simply that the practice successfully pursued was a deviation from the rules laid down in the schools. I am, Sir, your very obedient servant,

THOS. WHEELWRIGHT, M.D.

South-place, Finsbury,
March 31, 1840.

A lady, about 26 years of age, of delicate constitution, small stature, with great pallor of countenance, having arrived at the end of the eighth month of her second pregnancy, in descending the steps of the street door, fell with violence down several, and was immediately taken up by her servant, and placed on the sofa in a state of syncope; on which she continued more than half an hour before either circulation or consciousness returned. In the course of the afternoon she fainted several times, but being accustomed to such attacks from slight causes, and not appearing to have sustained much bodily injury, little attention was paid to them, and my attendance was not called till the following morning, in consequence of a smart discharge occurring in the night, of a florid-red colour, but without pain.

I found her under great alarm and apprehension, but at length succeeded in tranquillising her mind, and restoring her to a measure of confidence, by the assurance she would do well, and pledging her to strict attention to the rules I should lay down for her governance during the remainder of her time. I therefore enjoined the recumbent position in a cool apartment, abstinence from stimuli, and every source of disturbance and excitement to be carefully kept from her. A dessert spoonful of castor oil, when needed, was all the medicine prescribed. Thus proceeding, the discharge, though frequently recurring during the month, on the slightest exertion, was so far controlled as not materially to injure her. One coagula only, of the size and shape of a pullet's egg, was passed, on the second day after the accident, and that with very slight uterine pain. It was clearly to be inferred that a portion of the placenta was detached by the fall, and I assumed the farther probability, that its attachment was over the os uteri. Entertaining such views of the case, I felt it my duty to make her husband acquainted with its nature, and the hazard that would attend her confinement, requesting to be called at the commencement of labour. In compliance with such request, I was sent for at 7 o'clock on the morning of the 31st of January, 1838, just a month from the accident. On my arrival, about an hour and a half from the commencement of pain, I found the os uteri dilated to nearly the size of half-a-crown, soft and yielding, with the promise of a steady and quick dilatation. The pains were now progressing in a satisfactory manner, each one being attended with a gush of blood more or less severe, but not to any alarming extent. Considering it of great importance to expedite delivery, I resolved to rupture the membranes at the earliest period the state of dilatation would justify, and, ere long, succeeded, not without some difficulty, in passing my finger beside the placenta, and effected that object. The pains now became more vigorous and frequent, the placenta descending, with each pain, before the head of the child, until a portion equal to more than half its bulk protruded without the os externum, the head of the child resting on the symphysis pubis. The pains were now all I could desire, and being prepared at a moment for the usual proceeding in such cases, but calculating that the position of the head of the child, as it advanced its pressure on the bleeding vessels, would arrest the hæmorrhage, which happily I now found was the case, I endeavoured to return the placental mass, and shortly succeeded in passing it beside the head, retaining, however, pretty firm pressure, until the next pain was well forward, and then, withdrawing my support, the head advanced, and in two more pains the delivery was effected. Thus, by a little simple management, was this hazardous case brought to a happy termination, and I had the satisfaction of seeing my patient in a state of comparative security, and without having sustained the frightful amount of discharge which usually occurs in such cases. The placenta shortly passed, no further discharge ensuing. The child was still-born. The lady recovered without a single untoward symptom, regaining her strength slowly.

ABSENCE OF THE BLADDER.—EXTERNAL URINARY TUMOUR.

Mr. Favell, of Sheffield, has favoured us with the following account of a singular deformity, for publication:—

A lady in the vicinity of this town was brought to bed about two months ago of an infant, presenting the following malformation:—The space extending from the umbilicus to the pubis was occupied by a fleshy, fungoid-looking tumour, of about the size of a small orange. It struck me, at first sight, as being a vascular nævus. It was not, at birth, closely attached to the adjacent integuments, there being a slight fissure all round its edge. In two or three weeks, however, it became firmly united, and somewhat diminished in bulk. There was a watery oozing from the whole surface, which, from one or two points, I suspected to be urinary, particularly as the child had never been known to "*make* water." The lower part of the tumour had so interfered with the formation of the genital organs that there was a small crus penis attached by a slight fold of integument to the most depending portion of each side of the tumour, which rather dipped under the pubis. The rudiments of the testes were under the common integuments, presenting the appearance of vulvæ. The perinæal space was occupied by a thin membrane. The child died two days ago, and, on making a flap of the lower half of the abdominal parietes, I found that there was no bladder in the pelvis, and that the ureters, being elongated, passed through the parietes into the tumour, which consisted of cellular membrane, containing innumerable convolutions of the ureters, resembling the vas deferens in the testicle, and which opened by minute points upon the surface, giving rise to the watery discharge noticed during life. The general aspect of the tumour was vascular, and it discharged a few drops of blood occasionally.

W. F.

Sheffield, March 13, 1840.

DR. COPLAND'S MEDICAL DICTIONARY.

To the Editor of THE LANCET.

SIR:—The observations, in your last Number, of a "Constant Reader," on the treatment which the subscribers to "Copland's Medical Dictionary" have received from either the author or the publishers, are far too lenient to affect those who may meditate a similar "speculation" by similar means. A pledge was given, in the Prospectus of 1833, that its completion might be relied upon in a few months. Seven years have elapsed, and one-third only of the initial letters of the alphabet have been yet reached, a fact which the proprietors must very much blush or chuckle at. The author must have known, or the publishers ought to have known, that this pledge was a delusion practised upon themselves, or on the subscribers; and as the first and early numbers of the work were, of course, purchased upon the faith and warranty of respectable names, it would seem to follow, from the disreputable delay, that the author was (from, possibly, other engagements) incapable of fulfilling his self-imposed task, or that the speculation, *per se*, has been a failure. Whichever is the fact, my purse has been so far squeezed, and the circumstance somewhat nettles me, for no man likes to be "pigeon'd."

The only counsel I can offer to your Welsh correspondent, and to other fellow-sufferers, is to know their loss at once, as I intend to do, and no longer contribute to the rickety existence of a work which, although it has reached "I," and may now go to "L," is still, in the casualties of life, uncertain of completion. I have the honour to be your most obedient servant,

DUNNE BROWNE.

London, April 7, 1840.

REMUNERATION OF MEDICAL OFFICERS TO UNIONS.

To the Editor of THE LANCET.

SIR:—Allow me, through your widely-circulated columns, to draw the attention of surgeons, in charge of rural districts, to the "Petition" of the Gloucester Practitioners, about to be presented to Parliament. That Petition recommends, that in districts not exceeding sixteen square miles in area, the minimum payment per case should be about eight shillings—the maximum about twelve shillings.

Such a recommendation (if acted upon) would have the effect, in many places, of considerably reducing the at present inadequate remuneration. The sum per case must greatly depend upon certain points for consideration; for instance, the average number of cases per annum; the proportion of cases to be within a moderate distance (say two or three miles) of the surgeon's residence, &c. Extensive districts, with a thin, widely scattered population, require a greatly-increased amount of time, physical labour (and, let me add, expense in horses) for their due attendance. Moreover, cases occurring under these circumstances are more generally of a serious nature (and consequently frequently require a long attendance), as the poor will not trouble themselves to come for medicine four, six, or eight miles, unless the case is serious.

It is very easy to recommend that districts should not exceed certain limits; but were the surgeon, in many parts of the country, to practise within defined limits, he could scarcely exist, the population consisting, almost exclusively, of the agricultural poor. Until the terms of payment for medical services, offered by Boards of Guardians, will enable a surgeon to exist in decency, he *must* reside in a neighbourhood where the private practice will keep him, whether his residence be or be not within prescribed limits.

In giving the Gloucester Practitioners every credit for their exertions, I am surprised that points so evident, and so necessary to be considered, in arranging a scale of remuneration, have not been alluded to by them. I am, Sir, yours,

March 27, 1840. JUSTITIA.

P.S. Chronic cases should receive renewed orders at stated intervals, according to the nature of the case, distance, &c.

BITE OF A VIPER.—TRACHEOTOMY.

A MAN who, from his youth, had been accustomed to catch and tame vipers, brought two, on the 24th March, to a shopkeeper. While playing with one of the animals, he put it in his mouth, and was immediately bitten by the viper, in consequence of a by-stander having pinched its tail. The tongue at once became enormously swollen, and during the night the man could hardly breathe. A medical man was sent for next day, and found him in a very dangerous state,—the face swollen and anxious; the salivary glands tumefied; the tongue enormously swollen; and the pulse small. The tongue was immediately scarified, but the swelling soon returned again, and, as the man was about to repair to the hospital, he fell on the ground in a state of asphyxia. The respiration and pulse were now completely suspended; the face became purple, and the neck swelled to such a degree, that its circumference exceeded that of the head. The operation of tracheotomy was at once had recourse to, and the patient was bled; the blood, at first, flowed slowly, but, after

some time, the respiration became more regular, and the tumefaction of the neck was diminished. The man was now placed in bed, and thirty drops of the liquor ammon. acetatis were administered by means of an œsophagus tube; the neck was rubbed with volatile liniment, and sinapisms were applied to the neck and legs; the tongue was again scarified, but, as little blood came away, sixteen leeches were applied to the neck; the patient also took a drachm of nitre, and a lavement containing two ounces of vinegar. He slept during a part of the night, and in the morning found himself something better, although the tongue was still blue and swollen. On the third day after the operation the tongue had nearly recovered its natural state, and on the 19th day the man was dismissed perfectly cured. —*Caspar's Wochen. and Arch. de Med.*, Dec., 1839.

TREATMENT OF SYPHILIS.

M. Ricord has recently made some observations on the treatment of syphilis, in a French journal, of which the following is the substance.

M. Ricord divides the progress of syphilis into three stages or phases. In the first, the action of the virus is completely local; in the second stage, the accidents are confined to the skin, or mucous membranes, and are characterised by the fact that the morbid products are incapable of producing the original disease, on inoculation. The symptoms of the third stage rarely occur before the seventh month, and are incapable of being transmitted by hereditary disposition: this is their characteristic mark.

M. Ricord considers the mercurial treatment to be more frequently injurious than useful in the first stage. On the contrary, mercury is absolutely necessary in the second stage.

Where the tertiary symptoms alone exist, M. Ricord has generally recourse to the ioduret of potassium. He begins with doses of ten grains in the following manner:—

Distilled water, 3 ℥;
Ioduret of potassium, 10 grs.;
Syrup of poppies, 1 ℥.

This potion is taken in three doses, during the day, with sarsaparilla, the quantity of the ioduret gradually increased every five days, until the patient takes 100 grains a day.

Whenever secondary symptoms coexist with the tertiary, M. Ricord administers the proto-ioduret of mercury in the dose of a grain, gradually increased to six grains.—*Abridged from L'Experience*, No. 141.

NEW TREATMENT OF CANCER.

M. Jobert has endeavoured to check the progress of this terrible malady, by tying all the vessels and dividing all the nerves which are distributed to the affected part. His efforts, however, have not been crowned with success.

In four cases of cancer of the lip M. Jobert tied the facial and coronary vessels, and divided the branches of the fifth nerve, which pass to the lip. The ligature of the vessels caused some improvement in the appearance of the ulcers, and on dividing the nerves the pain was removed; but in all cases he was compelled to extirpate the disease, at last.—*L'Experience*, l. c.

THE VACCINATION BILL.

To the Editor of The Lancet.

Sir:—No person, having read The Lancet from its first Number,—having watched its proceedings from the period when games of chess and table-talk were introduced, to draw attention to medical literature,—can withhold the fact that you have effected the greatest medical reforms, both in private and in public institutions, of any man living. Hence, Sir, I take the liberty of speaking to you touching one more reformation, namely, that of the Vaccination Bill, the intention of which appears to be to afford greater facilities for vaccination. I find, that in your last Number you say that "this project is not quite the thing." Indeed it is not. Clause first proposes nothing more than the Guardians have ever had power to do, and, in fact, do accomplish, for the duty of vaccination is generally comprehended in the duties of the medical officer. Clause second declares that "the Guardians shall appoint," &c. So they may; but will the parents take their children to the medical vaccinators? There is a great number of places where practitioners vaccinate gratuitously, and that on a large scale. I myself do so to the number of 150 weekly on an average.

This Bill, then, as it stands, will not directly increase vaccination; but may afford a stimulus to those institutions which are already vaccinating gratuitously, by enabling the Guardians to award a small remuneration to them, and thus indirectly effect the object. Supposing that the Guardians had the power to pay to regularly-qualified practitioners a small amount for each case of vaccination, then such practitioners would use every exertion to procure cases. I have the honour to be, Sir, your constant reader,

A.

April 7, 1840.